SEQRA ENVIRONMENTAL ASSESSMENT FORM

New York State Division of the Lottery
Schenectady, New York

Development and Operation of a Video Lottery Facility at Aqueduct Racetrack Jamaica (Borough of Queens), New York

October 2010

O'BRIEN & GERE

2069/46391

Development and Operation of a Video Lottery Facility at Aqueduct Racetrack Jamaica (Borough of Queens), New York

Prepared for:
New York State Division of the Lottery
Schenectady, New York

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617.20
Appendix A
State Environmental Quality Review
FULL ENVIRONMENTAL ASSESSMENT FORM

Purpose: The full EAF is designed to help applicants and agencies determine, in an orderly manner, whether a project or action may be significant. The question of whether an action may be significant is not always easy to answer. Frequently, there are aspects of a project that are subjective or unmeasurable. It is also understood that those who determine significance may have little or no formal knowledge of the environment or may not be technically expert in environmental analysis. In addition, many who have knowledge in one particular area may not be aware of the broader concerns affecting the question of significance.

The full EAF is intended to provide a method whereby applicants and agencies can be assured that the determination process has been orderly, comprehensive in nature, yet flexible enough to allow introduction of information to fit a project or action.

Full EAF Components: The full EAF is comprised of three parts:

Part 1: Provides objective data and information about a given project and its site. By identifying basic project data, it assists a reviewer in the analysis that takes place in Parts 2 and 3.

Part 2: Focuses on identifying the range of possible impacts that may occur from a project or action. It provides guidance as to whether an impact is likely to be considered small to moderate or whether it is a potentially-large impact. The form also identifies whether an impact can be mitigated or reduced.

Part 3: If any impact in Part 2 is identified as potentially-large, then Part 3 is used to evaluate whether or not the impact is actually important.

THIS AREA FOR LEAD AGENCY USE ONLY

DETERMINATION OF SIGNIFICANCE -- Type 1 and Unlisted Actions

Identify the Portions of EAF completed for this project: ☑ Part 1 ☑ Part 2 ☑ Part 3

Upon review of the information recorded on this EAF (Parts 1 and 2 and 3 if appropriate), and any other supporting information, and considering both the magnitude and importance of each impact, it is reasonably determined by the lead agency that:

☒ A. The project will not result in any large and important impact(s) and, therefore, is one which will not have a significant impact on the environment, therefore a negative declaration will be prepared.

☐ B. Although the project could have a significant effect on the environment, there will not be a significant effect for this Unlisted Action because the mitigation measures described in PART 3 have been required, therefore a CONDITIONED negative declaration will be prepared.*

☐ C. The project may result in one or more large and important impacts that may have a significant impact on the environment, therefore a positive declaration will be prepared.

*A Conditioned Negative Declaration is only valid for Unlisted Actions

Development and Operation of a Video Lottery Facility at Aqueduct Racetrack

Name of Action

New York State Division of the Lottery

Name of Lead Agency

William J. Murray

Print or Type Name of Responsible Officer in Lead Agency

Deputy Director and General Counsel

Title of Responsible Officer

Signature of Responsible Officer in Lead Agency

Signature of Preparer (If different from responsible officer)

October 2010

Date

website

PART 1--PROJECT INFORMATION
Prepared by Project Sponsor

NOTICE: This document is designed to assist in determining whether the action proposed may have a significant effect on the environment. Please complete the entire form, Parts A through E. Answers to these questions will be considered as part of the application for approval and may be subject to further verification and public review. Provide any additional information you believe will be needed to complete Parts 2 and 3.

It is expected that completion of the full EAF will be dependent on information currently available and will not involve new studies, research or investigation. If information requiring such additional work is unavailable, so indicate and specify each instance.

Name of Action: Development and Operation of a Video Lottery Facility at Aqueduct Racetrack

Location of Action (include Street Address, Municipality and County)

110-00 Rockaway Boulevard, Jamaica, Borough of Queens, New York (See Figure 1 - Site Location)

Name of Applicant/Sponsor: New York State Office of General Services - Design and Construction Group

Address: 34th Floor, Corning Tower, The Governor Nelson A. Rockefeller Empire State Plaza

City / PO: Albany State: NY Zip Code: 12242

Business Telephone: (518) 474-5100

Name of Owner (if different): The People of the State of New York Acting By and Through the State Franchise Oversight Board
c/o The Executive Chamber

Address: The Capitol

City / PO: Albany State: NY Zip Code: 12224

Business Telephone: 518-474-1292

Description of Action:

The New York State Division of the Lottery (NY Lottery) is proposing to install approximately 4500± video lottery terminals (VLTs) at the existing Aqueduct Racetrack located in Jamaica (Borough of Queens), NY (see Figure 1). To support the project, the NY Lottery proposes the following site modifications (see Figure 2), which will be coordinated by Genting New York, LLC (GeNY):

· Interior and exterior renovations of the existing Grandstand and Clubhouse building to accommodate the VLTs and food and beverage program supporting a VLT gaming facility

· Construction of a new building entrance (Porte-Cochere)

· Construction of a 8-floor, 2,858± vehicle parking garage and repaving of existing surface parking

· Construction of a pedestrian bridge to connect the facility to an existing transit station

· Utility connections (i.e., service connections, upgrades)

· Improvements to existing on and off-site roadways consisting of onsite circulation improvements, removal of entrance booths on Rockaway Blvd, and off-site signalization changes

· Construction of a 6,000+/- square foot electrical service building (transformer enclosure and related switchgear)

· Modifications to the existing storm water management system

Please Complete Each Question--Indicate N.A. if not applicable

A. SITE DESCRIPTION

Physical setting of overall project, both developed and undeveloped areas.

1. Present Land Use: ■ Urban ☐ Industrial ☐ Commercial ☐ Residential (suburban) ☐ Rural (non-farm)
☐ Forest ☐ Agriculture ■ Other horse racetrack

2. Total acreage of project area: 174± acres. (Source: JCJ Architecture) (66± acres - lease area)

APPROXIMATE ACREAGE	PRESENTLY	AFTER COMPLETION *
Meadow or Brushland (Non-agricultural)	0± acres	0± acres
Forested	0± acres	0± acres
Agricultural (Includes orchards, cropland, pasture, etc.)	0± acres	0± acres
Wetland (Freshwater or tidal as per Articles 24,25 of ECL)	0± acres	0± acres
Water Surface Area	2.5± acres	2.5± acres
Unvegetated (Rock, earth or fill)	0± acres	0± acres
Roads, buildings and other paved surfaces (and lawn/landscaping)	171.5± acres	171.5± acres
Other (Indicate type)	0± acres	0± acres
	acres	N.A. acres

3. What is predominant soil type(s) on project site? Loamy fill and glacial outwash derived mainly from granitic materials

a. Soil drainage: ■ Well drained 100 % of site ☐ Moderately well drained ____% of site.
☐ Poorly drained ____% of site
Source: New York City Reconnaissance Soil Survey, National Cooperative Soil Survey, 2004.

b. If any agricultural land is involved, how many acres of soil are classified within soil group 1 through 4 of the NYS Land Classification System? NA acres (see 1 NYCRR 370).

4. Are there bedrock outcroppings on project site? ☐ Yes ■ No

a. What is depth to bedrock >45 (in feet) Source: On-site borings; Langan Engineering & Environmental Services, 2010.

5. Approximate percentage of proposed project site with slopes:

■ 0-10% 100 % ☐ 10- 15% ____ % ☐ 15% or greater ____%
Source: New York City Reconnaissance Soil Survey, National Cooperative Soil Survey, 2004.

6. Is project substantially contiguous to, or contain a building, site, or district, listed on the State or National Registers of Historic Places? ☐ Yes ■ No Sources: New York State Office of Parks, Recreation & Historic Preservation., The Geographic Information System for Archeology and National Register (http://nysparks.state.ny.us/shpo/online-tools/), United States Department of the Interior - National Register of Historic Places (http://www.nps.gov/history/NR/research/index.htm).

7. Is project substantially contiguous to a site listed on the Register of National Natural Landmarks? ☐ Yes ■ No
United States Department of the Interior - National Park Service, National Natural Landmarks Guide (http://www.nature.nps.gov/nnl/registry/usa_map/index.cfm).

8. What is the depth of the water table? >3 ft.
Source: New York City Reconnaissance Soil Survey, National Cooperative Soil Survey, 2004.

9. Is site located over a primary, principal, or sole source aquifer? ■ Yes ☐ No
Brooklyn-Queens Aquifer. Source: United States Environmental Protection Agency, Region II Sole Source Aquifers (www.epa.gov/region02/water/aquifer)

10. Do hunting, fishing or shell fishing opportunities presently exist in the project area? ☐ Yes ■ No

11. Does project site contain any species of plant or animal life that is identified as threatened or endangered? ☐ Yes ☒ No

According to:

United States Fish and Wildlife Service (www.fws.gov/northeast/nyfo/es/CountyLists/QueensDec2006.htm) and site reconnaissance.

Identify each species:

The following species are listed by the USFWS for having known occurrences in Queens County. However, the Piping plover (T), Roseate tern (E), Seabeach amaranth (T), Shortnose sturgeon (E) are coastal bird and/or fish species, which are not expected to be present on the project site.
T = Threatened E = Endangered

12. Are there any unique or unusual land forms on the project site? (i.e., cliffs, dunes, other geological formations?

☐ Yes ☒ No

Describe:

13. Is the project site presently used by the community or neighborhood as an open space or recreation area?

☒ Yes ☐ No

If yes, explain:

The Aqueduct Racetrack is located on the project site. A seasonal outdoor flea market also operates at the site. The flea market's lease expires in December 2010 and will not be renewed.

14. Does the present site include scenic views known to be important to the community? ☐ Yes ☒ No

15. Streams within or contiguous to project area:

NA

a. Name of Stream and name of River to which it is tributary

NA

16. Lakes, ponds, wetland areas within or contiguous to project area:

Ponds within racetrack property (track infield).

b. Size (in acres):

2.5± acres

17. Is the site served by existing public utilities? ■ Yes ☐ No

a. If YES, does sufficient capacity exist to allow connection? ☐ Yes ■ No

b. If YES, will improvements be necessary to allow connection? ■ Yes ☐ No (See Attachment 3D) (service connections and upgrades)

18. Is the site located in an agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ■ No

19. Is the site located in or substantially contiguous to a Critical Environmental Area designated pursuant to Article 8 of the ECL, and 6 NYCRR 617? ☐ Yes ■ No

Source: New York State Department of Environmental Conservation, Critical Environmental Areas (http://www.dec.ny.gov/permits/25142.html)

20. Has the site ever been used for the disposal of solid or hazardous wastes? ☐ Yes ■ No

B. Project Description

1. Physical dimensions and scale of project (fill in dimensions as appropriate).

a. Total contiguous acreage owned or controlled by project sponsor: 66± acres. (Source: JCJ Architecture, 2010)

b. Project acreage to be developed: 66± acres initially; 66± acres ultimately. (Includes 48± acres paved/repaved 6.3± acres new buildings, 10.8 acres lawn/landscaping) (Source: JCJ Architecture, 2010)

c. Project acreage to remain undeveloped: NA acres.

d. Length of project, in miles: NA (if appropriate)

e. If the project is an expansion, indicate percent of expansion proposed. 0 %

f. Number of off-street parking spaces existing 6280± ; proposed 7000± (includes approximately 2,858± new spaces in proposed parking garage) (Source: JCJ Architecture, 2010)

g. Maximum vehicular trips generated per hour: 2,654 (Source: Philip Habib and Associates, 2009) (See Attachment 3E)

h. If residential: Number and type of housing units: NA

	One Family	Two Family	Multiple Family	Condominium
Initially				
Ultimately				

i. Dimensions (in feet) of largest proposed structure: 150 +/- height; 308 +/- width; 385 +/- length. (See note*) (Source: JCJ Architecture, 2010)

j. Linear feet of frontage along a public thoroughfare project will occupy is? NA ft.

2. How much natural material (i.e. rock, earth, etc.) will be removed from the site? 112,000 cy (garage excavation) 14, 500 cy (clearing, grubbing) tons/cubic yards.

3. Will disturbed areas be reclaimed ☐ Yes ☐ No ■ N/A

a. If yes, for what intended purpose is the site being reclaimed?

Disturbed areas not developed for buildings, paved areas or other facilities will be restored as lawn/landscaped areas.

b. Will topsoil be stockpiled for reclamation? ■ Yes ☐ No

c. Will upper subsoil be stockpiled for reclamation? ■ Yes ☐ No

4. How many acres of vegetation (trees, shrubs, ground covers) will be removed from site? 0 acres. (Approximately seven acres of trees/shrubs will be removed from site, but similar plantings will be replaced elsewhere) (Source: JCJ Architecture, 2010)

*Width and length dimensions are for proposed parking garage. The height of the garage is 80 +/- feet, which is less than the tallest existing structure. The 150-foot tall structure is the tallest portion of the proposed revised entrance facade (Figure 7). The height of the existing building at that location is 100 +/- feet.

5. Will any mature forest (over 100 years old) or other locally-important vegetation be removed by this project?

☐ Yes ☒ No

6. If single phase project: Anticipated period of construction: 18± months, (including demolition)

7. If multi-phased: N.A.

a. Total number of phases anticipated _____ (number)

b. Anticipated date of commencement phase 1: _____ month _____ year

c. Approximate completion date of final phase: _____ month _____ year.

d. Is phase 1 functionally dependent on subsequent phases? ☐ Yes ☐ No

8. Will blasting occur during construction? ☐ Yes ☒ No

9. Number of jobs generated: during construction 500± ; after project is complete 830±
(Source: Genting New York, LLC, 2010)

10. Number of jobs eliminated by this project 0 . (lease of current flea market expires in December 2010 and will not be renewed)

11. Will project require relocation of any projects or facilities? ☒ Yes ☐ No

If yes, explain:

The existing on-site, 8-inch diameter fire service will be relocated to accommodate new construction. The service will continue to use the existing tie-in connection at Rockaway Blvd.

12. Is surface liquid waste disposal involved? ☐ Yes ☒ No

a. If yes, indicate type of waste (sewage, industrial, etc) and amount _____

b. Name of water body into which effluent will be discharged _____

13. Is subsurface liquid waste disposal involved? ☐ Yes ☒ No Type _____

14. Will surface area of an existing water body increase or decrease by proposal? ☐ Yes ☒ No

If yes, explain:

15. Is project or any portion of project located in a 100 year flood plain? ☐ Yes ☒ No

Source: FEMA Flood Insurance Rate Map Community Panel No. 360497 0077 B (11/16/83) 360497 0076 C (5/18/92) 360497 0237F (9/5/07) (See Figure 6)

16. Will the project generate solid waste? ☒ Yes ☐ No

a. If yes, what is the amount per month? 204± tons (food and office wastes)
(Source: JCJ Architecture, 2010) See note below*

b. If yes, will an existing solid waste facility be used? ☒ Yes ☐ No

c. If yes, give name TBD by future vendor ; location Various permitted facilities in area

d. Will any wastes not go into a sewage disposal system or into a sanitary landfill? ☒ Yes ☐ No

*(Approximately 3,300 tons/month of construction debris will be disposed during the anticipated 3-month demolition phase. An additional 25,000 cy of material will be generated during site construction activities and 7,500 cy of pavement demolition (garage footprint).

e. If yes, explain:

Approximately 25% of the construction and demolition (C&D) debris generated during renovation activities will be recycled/reused to the extent practicable.

17. Will the project involve the disposal of solid waste? ☐ Yes ■ No

a. If yes, what is the anticipated rate of disposal? _____ tons/month.

b. If yes, what is the anticipated site life? _____ years.

18. Will project use herbicides or pesticides? ■ Yes ☐ No (in accordance with New York State requirements and manufacturing label guidance)

19. Will project routinely produce odors (more than one hour per day)? ☐ Yes ■ No

20. Will project produce operating noise exceeding the local ambient noise levels? ☐ Yes ■ No Construction related noise impacts will be short-term. See noise study in Attachment 3F.

21. Will project result in an increase in energy use? ■ Yes ☐ No

If yes, indicate type(s)

Electricity and natural gas will be consumed during construction and operations (See Attachment 3D).

22. If water supply is from wells, indicate pumping capacity NA gallons/minute.

23. Total anticipated water usage per day 72,000± gallons/day. (Source: JCJ Architecture, 2010)

24. Does project involve Local, State or Federal funding? ■ Yes ☐ No

If yes, explain:

State funding coordinated through Empire State Development.

25. Approvals Required:

			Type	Submittal Date
City, Town, Village Board	☐ Yes	■ No		
City, Town, Village Planning Board	☐ Yes	■ No		
City, Town Zoning Board	☐ Yes	■ No		
City, County Health Department	☐ Yes	■ No		
Other Local Agencies	☐ Yes	■ No		
Other Regional Agencies	☐ Yes	■ No		
State Agencies	■ Yes	☐ No	ESD - Funding, General Project Plan Approval Franchise Oversight Board NYSOGS - Construction Permit MTA Pedestrian Bridge Connection	TBD TBD TBD TBD
Federal Agencies	☐ Yes	■ No		

C. Zoning and Planning Information

1. Does proposed action involve a planning or zoning decision? ☐ Yes ■ No

If Yes, indicate decision required:

☐ Zoning amendment ☐ Zoning variance ☐ New/revision of master plan ☐ Subdivision

☐ Site plan _____ ☐ Special use permit ☐ Resource management plan ☐ Other

2. What is the zoning classification(s) of the site?

C8-1 (General Service District)

3. What is the maximum potential development of the site if developed as permitted by the present zoning?

NA

4. What is the proposed zoning of the site?

NA

5. What is the maximum potential development of the site if developed as permitted by the proposed zoning?

NA

6. Is the proposed action consistent with the recommended uses in adopted local land use plans? ■ Yes ☐ No

The project does not represent a change in land use. The site will continue to operate as a horse racing track.

7. What are the predominant land use(s) and zoning classifications within a ¼ mile radius of proposed action?

Predominant land uses and zoning classifications within a 1/4 mile radius of the proposed action consist of residential, commercial, and manufacturing.

Sources:

http://home2.nyc.gov/html/dep/pdf/zone/map18a.pdf
http://home2.nyc.gov/html/dep/pdf/zone/map18b.pdf
http://home2.nyc.gov/html/dep/pdf/zone/map18c.pdf
http://home2.nyc.gov/html/dep/pdf/zone/map18d.pdf

8. Is the proposed action compatible with adjoining/surrounding land uses within a 1/4 mile? ■ Yes ☐ No

9. If the proposed action is the subdivision of land, how many lots are proposed? NA

   a. What is the minimum lot size proposed? _____

10. Will proposed action require any authorization(s) for the formation of sewer or water districts? ☐ Yes ☒ No

11. Will the proposed action create a demand for any community provided services (recreation, education, police, fire protection?

☒ Yes ☐ No

a. If yes, is existing capacity sufficient to handle projected demand? ☒ Yes ☐ No

Design and construction phase activities will be coordinated with the local police and fire departments. It is expected that one or more security guards on duty for each shift will be trained EMTs (See expanded discussion in Attachment 2).

12. Will the proposed action result in the generation of traffic significantly above present levels? ☒ Yes ☐ No

a. If yes, is the existing road network adequate to handle the additional traffic. ☒ Yes ☐ No

The existing traffic control system will be upgraded as part of the project consisting of onsite circulation improvements, removal of entrance booths on Rockaway Blvd., and off-site signalization changes (See Attachment 3E).

D. Informational Details

Attach any additional information as may be needed to clarify your project. If there are or may be any adverse impacts associated with your proposal, please discuss such impacts and the measures which you propose to mitigate or avoid them.

E. Verification

I certify that the information provided above is true to the best of my knowledge.

Applicant/Sponsor Name Carolyn D. Dunderdale, L.A., New York State Office of General Services Date October 20, 2010

(Agent for the New York State Division of the Lottery)

Signature Carolyn Dunderdale

Title Senior Landscape Architect, Environmental Permits

If the action is in the Coastal Area, and you are a state agency, complete the Coastal Assessment Form before proceeding with this assessment.

NA

PART 2 - PROJECT IMPACTS AND THEIR MAGNITUDE

Responsibility of Lead Agency

General Information (Read Carefully)

- In completing the form the reviewer should be guided by the question: Have my responses and determinations been **reasonable?** The reviewer is not expected to be an expert environmental analyst.
- The **Examples** provided are to assist the reviewer by showing types of impacts and wherever possible the threshold of magnitude that would trigger a response in column 2. The examples are generally applicable throughout the State and for most situations. But, for any specific project or site other examples and/or lower thresholds may be appropriate for a Potential Large Impact response, thus requiring evaluation in Part 3.
- The impacts of each project, on each site, in each locality, will vary. Therefore, the examples are illustrative and have been offered as guidance. They do not constitute an exhaustive list of impacts and thresholds to answer each question.
- The number of examples per question does not indicate the importance of each question.
- In identifying impacts, consider long term, short term and cumulative effects.

Instructions (Read carefully)

a. Answer each of the 20 questions in PART 2. Answer **Yes** if there will be **any** impact.

b. **Maybe** answers should be considered as **Yes** answers.

c. If answering **Yes** to a question then check the appropriate box(column 1 or 2)to indicate the potential size of the impact. If impact threshold equals or exceeds any example provided, check column 2. If impact will occur but threshold is lower than example, check column 1.

d. Identifying that an Impact will be potentially large (column 2) does not mean that it is also necessarily **significant**. Any large impact must be evaluated in PART 3 to determine significance. Identifying an impact in column 2 simply asks that it be looked at further.

e. If reviewer has doubt about size of the impact then consider the impact as potentially large and proceed to PART 3.

f. If a potentially large impact checked in column 2 can be mitigated by change(s) in the project to a small to moderate impact, also check the **Yes** box in column 3. A **No** response indicates that such a reduction is not possible. This must be explained in Part 3.

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact Be Mitigated by Project Change
Impact on Land			
1. Will the Proposed Action result in a physical change to the project site? NO ☐ YES ■			
Examples that would apply to column 2			
• Any construction on slopes of 15% or greater, (15 foot rise per 100 foot of length), or where the general slopes in the project area exceed 10%.	☐	☐	☐ Yes ☐ No
• Construction on land where the depth to the water table is less than 3 feet.	☐	☐	☐ Yes ☐ No
• Construction of paved parking area for 1,000 or more vehicles. (new garage and repairing of existing parking spaces with a reduction of total impervious surface)	☐	■	■ Yes ☐ No
• Construction on land where bedrock is exposed or generally within 3 feet of existing ground surface.	☐	☐	☐ Yes ☐ No
• Construction that will continue for more than 1 year or involve more than one phase or stage.	☐	■	■ Yes ☐ No
• Excavation for mining purposes that would remove more than 1,000 tons of natural material (i.e., rock or soil) per year.	☐	☐	☐ Yes ☐ No

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact Be Mitigated by Project Change
• Construction or expansion of a santary landfill.	☐	☐	☐ Yes ☐ No
• Construction in a designated floodway.	☐	☐	☐ Yes ☐ No
• Other impacts:	☐	☐	☐ Yes ☐ No

2. Will there be an effect to any unique or unusual land forms found on the site? (i.e., cliffs, dunes, geological formations, etc.)
   ☒ NO ☐ YES

• Specific land forms:	☐	☐	☐ Yes ☐ No

Impact on Water

3. Will Proposed Action affect any water body designated as protected? (Under Articles 15, 24, 25 of the Environmental Conservation Law, ECL)
   ☒ NO ☐ YES

Examples that would apply to column 2

• Developable area of site contains a protected water body.	☐	☐	☐ Yes ☐ No
• Dredging more than 100 cubic yards of material from channel of a protected stream.	☐	☐	☐ Yes ☐ No
• Extension of utility distribution facilities through a protected water body.	☐	☐	☐ Yes ☐ No
• Construction in a designated freshwater or tidal wetland.	☐	☐	☐ Yes ☐ No
• Other impacts:	☐	☐	☐ Yes ☐ No

4. Will Proposed Action affect any non-protected existing or new body of water?
   ☒ NO ☐ YES

Examples that would apply to column 2

• A 10% increase or decrease in the surface area of any body of water or more than a 10 acre increase or decrease.	☐	☐	☐ Yes ☐ No
• Construction of a body of water that exceeds 10 acres of surface area.	☐	☐	☐ Yes ☐ No
• Other impacts:	☐	☐	☐ Yes ☐ No

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact Be Mitigated by Project Change

5. Will Proposed Action affect surface or groundwater quality or quantity?

☐ NO ☒ YES

Examples that would apply to column 2

• Proposed Action will require a discharge permit.	☐	☐	☐ Yes	☐ No
• Proposed Action requires use of a source of water that does not have approval to serve proposed (project) action.	☐	☐	☐ Yes	☐ No
• Proposed Action requires water supply from wells with greater than 45 gallons per minute pumping capacity.	☐	☐	☐ Yes	☐ No
• Construction or operation causing any contamination of a water supply system.	☐	☐	☐ Yes	☐ No
• Proposed Action will adversely affect groundwater.	☐	☐	☐ Yes	☐ No
• Liquid effluent will be conveyed off the site to facilities which presently do not exist or have inadequate capacity.	☐	☐	☐ Yes	☐ No
• Proposed Action would use water in excess of 20,000 gallons per day.	☐	☒	☒ Yes	☐ No
• Proposed Action will likely cause siltation or other discharge into an existing body of water to the extent that there will be an obvious visual contrast to natural conditions.	☐	☐	☐ Yes	☐ No
• Proposed Action will require the storage of petroleum or chemical products greater than 1,100 gallons.	☐	☒	☒ Yes	☐ No
• Proposed Action will allow residential uses in areas without water and/or sewer services.	☐	☐	☐ Yes	☐ No
• Proposed Action locates commercial and/or industrial uses which may require new or expansion of existing waste treatment and/or storage facilities.	☐	☐	☐ Yes	☐ No
• Other impacts:	☐	☐	☐ Yes	☐ No

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact Be Mitigated by Project Change

6. Will Proposed Action alter drainage flow or patterns, or surface water runoff?
☐ NO ■ YES

Examples that would apply to column 2

• Proposed Action would change flood water flows	☐	☐	☐ Yes	☐ No
• Proposed Action may cause substantial erosion.	☐	☐	☐ Yes	☐ No
• Proposed Action is incompatible with existing drainage patterns.	☐	☐	☐ Yes	☐ No
• Proposed Action will allow development in a designated floodway.	☐	☐	☐ Yes	☐ No
• Other impacts:	☐	■	■ Yes	☐ No

Modifications to the existing storm water management system. Improvements consist of (4) 50,000 gallon underground storage chambers designed to support flow to the Borough's combined 5-year storm sewer system per NYCDEP regulations and guidelines. Locations will be proximate to existing storm water mains on site. See Attachment 3A.

IMPACT ON AIR

7. Will Proposed Action affect air quality?
☐ NO ■ YES

Examples that would apply to column 2

• Proposed Action will induce 1,000 or more vehicle trips in any given hour. (See Attachment 3D)	☐	■	■ Yes	☐ No
• Proposed Action will result in the incineration of more than 1 ton of refuse per hour.	☐	☐	☐ Yes	☐ No
• Emission rate of total contaminants will exceed 5 lbs. per hour or a heat source producing more than 10 million BTU's per hour.	☐	☐	☐ Yes	☐ No
• Proposed Action will allow an increase in the amount of land committed to industrial use.	☐	☐	☐ Yes	☐ No
• Proposed Action will allow an increase in the density of industrial development within existing industrial areas.	☐	☐	☐ Yes	☐ No
• Other impacts:	☐	☐	☐ Yes	☐ No

Greenhouse gas evaluation was also conducted (See Attachment 3B).

IMPACT ON PLANTS AND ANIMALS

8. Will Proposed Action affect any threatened or endangered species?
■ NO ☐ YES

Examples that would apply to column 2

• Reduction of one or more species listed on the New York or Federal list, using the site, over or near the site, or found on the site.	☐	☐	☐ Yes	☐ No

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact Be Mitigated by Project Change
• Removal of any portion of a critical or significant wildlife habitat.	☐	☐	☐ Yes ☐ No
• Application of pesticide or herbicide more than twice a year, other than for agricultural purposes.	☐	☐	☐ Yes ☐ No
• Other impacts:	☐	☐	☐ Yes ☐ No

9. Will Proposed Action substantially affect non-threatened or non-endangered species?
☒ NO ☐ YES

Examples that would apply to column 2

• Proposed Action would substantially interfere with any resident or migratory fish, shellfish or wildlife species.	☐	☐	☐ Yes ☐ No
• Proposed Action requires the removal of more than 10 acres of mature forest (over 100 years of age) or other locally important vegetation.	☐	☐	☐ Yes ☐ No
• Other impacts:	☐	☐	☐ Yes ☐ No

IMPACT ON AGRICULTURAL LAND RESOURCES

10. Will Proposed Action affect agricultural land resources?
☒ NO ☐ YES

Examples that would apply to column 2

• The Proposed Action would sever, cross or limit access to agricultural land (includes cropland, hayfields, pasture, vineyard, orchard, etc.)	☐	☐	☐ Yes ☐ No
• Construction activity would excavate or compact the soil profile of agricultural land.	☐	☐	☐ Yes ☐ No
• The Proposed Action would irreversibly convert more than 10 acres of agricultural land or, if located in an Agricultural District, more than 2.5 acres of agricultural land.	☐	☐	☐ Yes ☐ No

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact Be Mitigated by Project Change
• The Proposed Action would disrupt or prevent installation of agricultural land management systems (e.g., subsurface drain lines, outlet ditches, strip cropping); or create a need for such measures (e.g. cause a farm field to drain poorly due to increased runoff).	☐	☐	☐ Yes ☐ No
• Other impacts:	☐	☐	☐ Yes ☐ No

IMPACT ON AESTHETIC RESOURCES

11. Will Proposed Action affect aesthetic resources? (If necessary, use the Visual EAF Addendum in Section 617.20, Appendix B.)
☒ NO ☐ YES

Examples that would apply to column 2			
• Proposed land uses, or project components obviously different from or in sharp contrast to current surrounding land use patterns, whether man-made or natural.	☐	☐	☐ Yes ☐ No
• Proposed land uses, or project components visible to users of aesthetic resources which will eliminate or significantly reduce their enjoyment of the aesthetic qualities of that resource.	☐	☐	☐ Yes ☐ No
• Project components that will result in the elimination or significant screening of scenic views known to be important to the area.	☐	☐	☐ Yes ☐ No
• Other impacts:	☐	☐	☐ Yes ☐ No

IMPACT ON HISTORIC AND ARCHAEOLOGICAL RESOURCES

12. Will Proposed Action impact any site or structure of historic, prehistoric or paleontological importance?
☐ NO ☒ YES

Examples that would apply to column 2			
• Proposed Action occurring wholly or partially within or substantially contiguous to any facility or site listed on the State or National Register of historic places.	☐	☐	☐ Yes ☐ No
• Any impact to an archaeological site or fossil bed located within the project site.	☐	☐	☐ Yes ☐ No
• Proposed Action will occur in an area designated as sensitive for archaeological sites on the NYS Site Inventory. (See Attachment 3C)	☐	☒	☒ Yes ☐ No

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact Be Mitigated by Project Change
• Other impacts:	☐	☐	☐ Yes ☐ No

IMPACT ON OPEN SPACE AND RECREATION

13. Will proposed Action affect the quantity or quality of existing or future open spaces or recreational opportunities?
☒ NO ☐ YES

Examples that would apply to column 2

• The permanent foreclosure of a future recreational opportunity.	☐	☐	☐ Yes ☐ No
• A major reduction of an open space important to the community.	☐	☐	☐ Yes ☐ No
• Other impacts:	☐	☐	☐ Yes ☐ No

IMPACT ON CRITICAL ENVIRONMENTAL AREAS

14. Will Proposed Action impact the exceptional or unique characteristics of a critical environmental area (CEA) established pursuant to subdivision 6NYCRR 617.14(g)?
☒ NO ☐ YES (Source: www.dec.ny.gov/permits/25142.html)

List the environmental characteristics that caused the designation of the CEA.

Examples that would apply to column 2

• Proposed Action to locate within the CEA?	☐	☐	☐ Yes ☐ No
• Proposed Action will result in a reduction in the quantity of the resource?	☐	☐	☐ Yes ☐ No
• Proposed Action will result in a reduction in the quality of the resource?	☐	☐	☐ Yes ☐ No
• Proposed Action will impact the use, function or enjoyment of the resource?	☐	☐	☐ Yes ☐ No
• Other impacts:	☐	☐	☐ Yes ☐ No

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact Be Mitigated by Project Change

IMPACT ON TRANSPORTATION

15. Will there be an effect to existing transportation systems?
☐ NO ☒ YES

Examples that would apply to column 2

• Alteration of present patterns of movement of people and/or goods.	☐	☐	☐ Yes	☐ No
• Proposed Action will result in major traffic problems.	☐	☐	☐ Yes	☐ No
• Other impacts:	☐	☒	☒ Yes	☐ No

Proposed project will increase traffic on local roadways. Project related on- and off-site improvements are identified in Attachment 3E.

IMPACT ON ENERGY

16. Will Proposed Action affect the community's sources of fuel or energy supply?

☐ NO ☒ YES (Compliance with NYS Energy Conservation Code will result in the minimization of energy requirements [See Attachment 3D])

Examples that would apply to column 2

• Proposed Action will cause a greater than 5% increase in the use of any form of energy in the municipality.	☐	☐	☐ Yes	☐ No
• Proposed Action will require the creation or extension of an energy transmission or supply system to serve more than 50 single or two family residences or to serve a major commercial or industrial use.	☐	☐	☐ Yes	☐ No
• Other impacts:	☒	☐	☐ Yes	☐ No

Project requires 2,800± foot extension of 12-inch diameter gas main.

NOISE AND ODOR IMPACT

17. Will there be objectionable odors, noise, or vibration as a result of the Proposed Action?

☒ NO ☐ YES (See Attachment 3J)

Examples that would apply to column 2

• Blasting within 1,500 feet of a hospital, school or other sensitive facility.	☐	☐	☐ Yes	☐ No
• Odors will occur routinely (more than one hour per day).	☐	☐	☐ Yes	☐ No
• Proposed Action will produce operating noise exceeding the local ambient noise levels for noise outside of structures.	☐	☐	☐ Yes	☐ No
• Proposed Action will remove natural barriers that would act as a noise screen.	☐	☐	☐ Yes	☐ No
• Other impacts:	☐	☐	☐ Yes	☐ No

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact Be Mitigated by Project Change

IMPACT ON PUBLIC HEALTH

18. Will Proposed Action affect public health and safety?
☒ NO ☐ YES

• Proposed Action may cause a risk of explosion or release of hazardous substances (i.e. oil, pesticides, chemicals, radiation, etc.) in the event of accident or upset conditions, or there may be a chronic low level discharge or emission.	☐	☐	☐ Yes	☐ No
• Proposed Action may result in the burial of "hazardous wastes" in any form (i.e. toxic, poisonous, highly reactive, radioactive, irritating, infectious, etc.)	☐	☐	☐ Yes	☐ No
• Storage facilities for one million or more gallons of liquefied natural gas or other flammable liquids.	☐	☐	☐ Yes	☐ No
• Proposed Action may result in the excavation or other disturbance within 2,000 feet of a site used for the disposal of solid or hazardous waste.	☐	☐	☐ Yes	☐ No
• Other impacts:	☐	☐	☐ Yes	☐ No

IMPACT ON GROWTH AND CHARACTER OF COMMUNITY OR NEIGHBORHOOD

19. Will Proposed Action affect the character of the existing community?
☐ NO ☒ YES

Examples that would apply to column 2

• The permanent population of the city, town or village in which the project is located is likely to grow by more than 5%.	☐	☐	☐ Yes	☐ No
• The municipal budget for capital expenditures or operating services will increase by more than 5% per year as a result of this project.	☐	☐	☐ Yes	☐ No
• Proposed Action will conflict with officially adopted plans or goals.	☐	☐	☐ Yes	☐ No
• Proposed Action will cause a change in the density of land use.	☐	☐	☐ Yes	☐ No
• Proposed Action will replace or eliminate existing facilities, structures or areas of historic importance to the community.	☐	☐	☐ Yes	☐ No
• Development will create a demand for additional community services (e.g. schools, police and fire, etc.)	☐	☒	☒ Yes	☐ No

(Note: The number of visitors is anticipated to be below historic peak levels. Based on similar operations, NY Lottery estimates 3 to 4 incidents per week will require police response. See Attachment 2.)

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact Be Mitigated by Project Change
• Proposed Action will set an important precedent for future projects.	☐	☐	☐ Yes ☐ No
• Proposed Action will create or eliminate employment.	■	☐	☐ Yes ☐ No
• Other impacts:	☐	☐	☐ Yes ☐ No

20. Is there, or is there likely to be, public controversy related to potential adverse environment impacts?
    ■ NO ☐ YES

If Any Action in Part 2 Is Identified as a Potential Large Impact or If you Cannot Determine the Magnitude of Impact, Proceed to Part 3

Part 3 - EVALUATION OF THE IMPORTANCE OF IMPACTS

Responsibility of Lead Agency

Part 3 must be prepared if one or more impact(s) is considered to be potentially large, even if the impact(s) may be mitigated.

Instructions (If you need more space, attach additional sheets)

Discuss the following for each impact identified in Column 2 of Part 2:

1. Briefly describe the impact.

2. Describe (if applicable) how the impact could be mitigated or reduced to a small to moderate impact by project change(s).

3. Based on the information available, decide if it is reasonable to conclude that this impact is **important**.

   To answer the question of importance, consider:

   - The probability of the impact occurring
   - The duration of the impact
   - Its irreversibility, including permanently lost resources of value
   - Whether the impact can or will be controlled
   - The regional consequence of the impact
   - Its potential divergence from local needs and goals
   - Whether known objections to the project relate to this impact.

No significant adverse impacts are anticipated (See Attachment 2).

Reset

Lists of Involved and Interested Agencies

NEW YORK STATE DIVISION OF THE LOTTERY
DEVELOPMENT AND OPERATION OF A VIDEO LOTTERY FACILITY AT AQUEDUCT RACETRACK
JAMAICA (BOROUGH OF QUEENS), NEW YORK

Table 1 ***SEQRA Involved Agency Contact List.***

	Contact Name	Title	Address	Agency
State				
1	Carolyn D. Dunderdale, LA	Senior Landscape Architect Environmental Permits Design and Construction Group	Empire State Plaza, Corning Tower, 34th Floor Albany, NY 12242	NYSOGS
2	William J. Murray	Deputy Director and General Counsel	One Broadway Center P.O. Box 7500 Schenectady, NY 12301-7500	NYS Division of the Lottery
3	Dennis M. Mullen	Chairman & CEO	633 Third Avenue, 37th Floor New York, NY 10017	Empire State Development Corporation
4	Peter Davidson	Executive Director	633 Third Avenue, 37th Floor New York, NY 10017	Empire State Development Corporation
5	Rachel Shatz	Vice President Planning and Environmental Review	633 Third Avenue, 34th Floor New York, NY 10017	Empire State Development Corporation
6	Colleen Channer	Environmental Counsel	347 Madison Avenue New York, NY 10017	MTA
7	George Westervelt	Secretary and Administrative Officer	State Capitol Albany, NY 12224	Franchise Oversight Board

Source: O'Brien & Gere

Acronyms

MTA – Metropolitan Transportation Authority

NYS – New York State

NYSOGS – New York State Office of General Services

SEQRA – State Environmental Quality Review Act

NEW YORK STATE DIVISION OF THE LOTTERY
DEVELOPMENT AND OPERATION OF A VIDEO LOTTERY FACILITY AT AQUEDUCT RACETRACK
JAMAICA (BOROUGH OF QUEENS), NEW YORK

Table 2 ***SEQRA Interested Agency Contact List.***

	Contact Name	Title	Address	Agency
Local				
1	Paul Faublas	Engineer Bureau of Water & Sewer Services	59-17 Junction Boulevard, 13th Floor Flushing, NY 11373	NYCDEP
2	Maura McCarthy	Queens Borough Commissioner	120-55 Queens Boulevard, 2nd Floor Kew Gardens, NY 11424	NYCDOT
3	Ira Gluckman	Queens Borough Commissioner	120-55 Queens Boulevard, 2nd Floor Kew Gardens, NY 11424	NYCDOB
4	Helen M. Marshall	Queens Borough President	120-55 Queens Boulevard, 2nd Floor Kew Gardens, NY 11424	Office of the Queens Borough President
5	John D. Sabini	Chairman	One Broadway Center, Suite 600 Schenectady, New York 12305-2553	NYS Racing & Wagering Board
6	Elizabeth Braton	Chairwoman	115-01 Lefferts Boulevard South Ozone Park, NY 11420	Community Board 10, Queens

Source: O'Brien & Gere

Acronyms

NYC – New York City

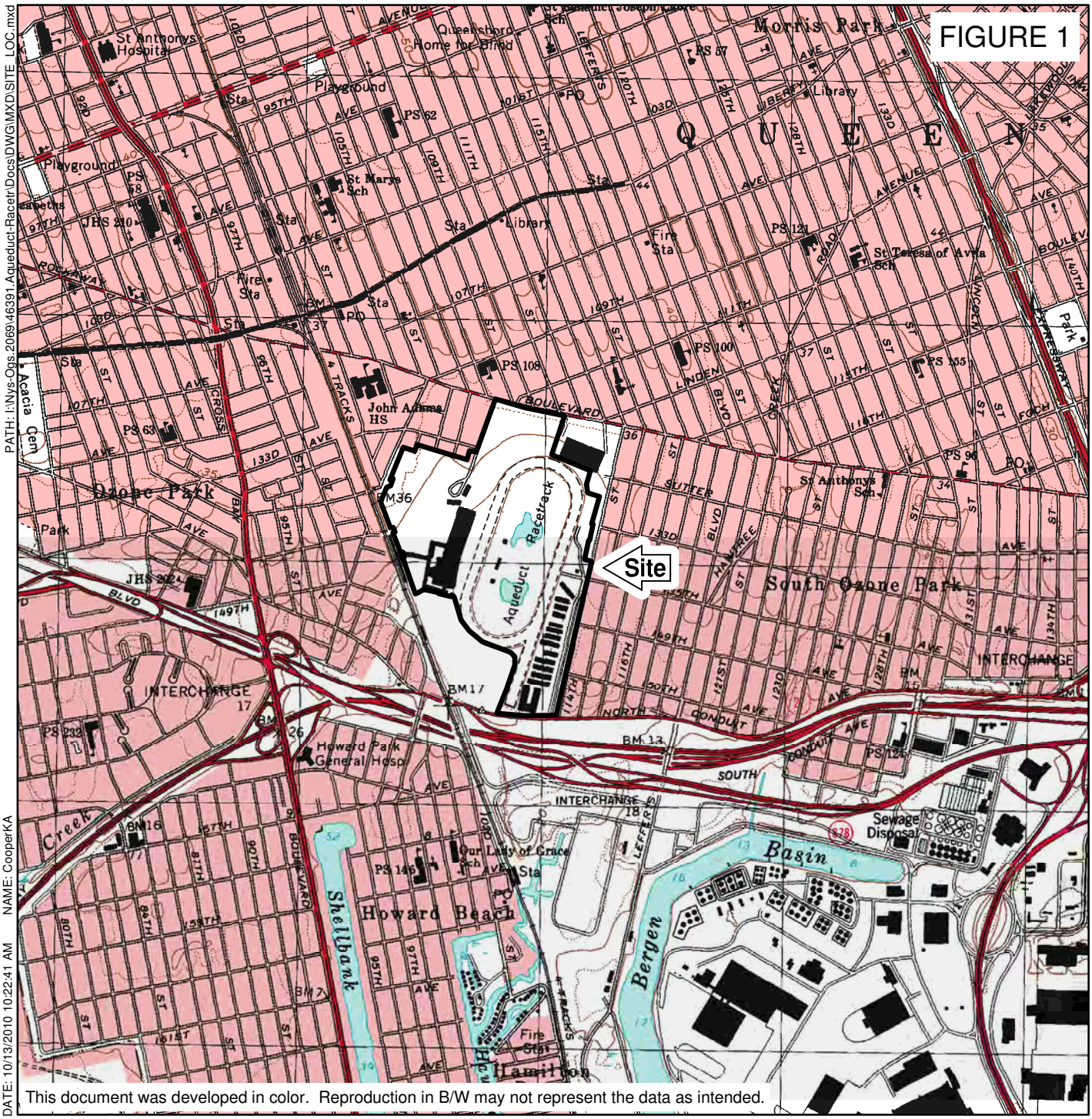
NYCDEP – New York City Department of Environmental Protection

NYCDOB – New York City Department of Buildings

NYCDOT- New York City Department of Transportation

Figures

FIGURE 1



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DATE: 10/13/2010 10:22:41 AM

This document was developed in color. Reproduction in B/W may not represent the data as intended.

ADAPTED FROM: JAMAICA, NEW YORK USGS QUADRANGLE

AQUEDUCT RACETRACK
110-00 ROCKAWAY BLVD
JAMAICA, NEW YORK 11420

MAP LOCATION

SITE LOCATION

N

0 1,000 2,000 4,000 6,000 8,000

Feet

OCTOBER 2010
2069.46391

1:24,000

O'BRIEN & GERE

PATH: I:\Nys-Ops.2069\46391.Aqueduct-Racetr\Docs\DWG\MXD\Site_Plan_101510.mxd
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DATE: 10/15/2010 10:57:36 AM

SOURCE: JCJ ARCHITECTURE, 2010.

AQUEDUCT RACETRACK
110-00 ROCKAWAY BLVD
JAMAICA, NEW YORK 11420

PROJECT SITE PLAN

NOT TO SCALE

FIGURE 2

OCTOBER 2010
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NAME: CooperKA
DATE: 10/13/2010 9:59:57 AM

SOURCE: NYS GIS CLEARINGHOUSE, NYSDOP WMS.
IMAGERY DATE: 2006

LEGEND

APPROX. SITE BOUNDARY

OCTOBER 2010
2069.46391

AQUEDUCT RACETRACK
110-00 ROCKAWAY BLVD
JAMAICA, NEW YORK 11420

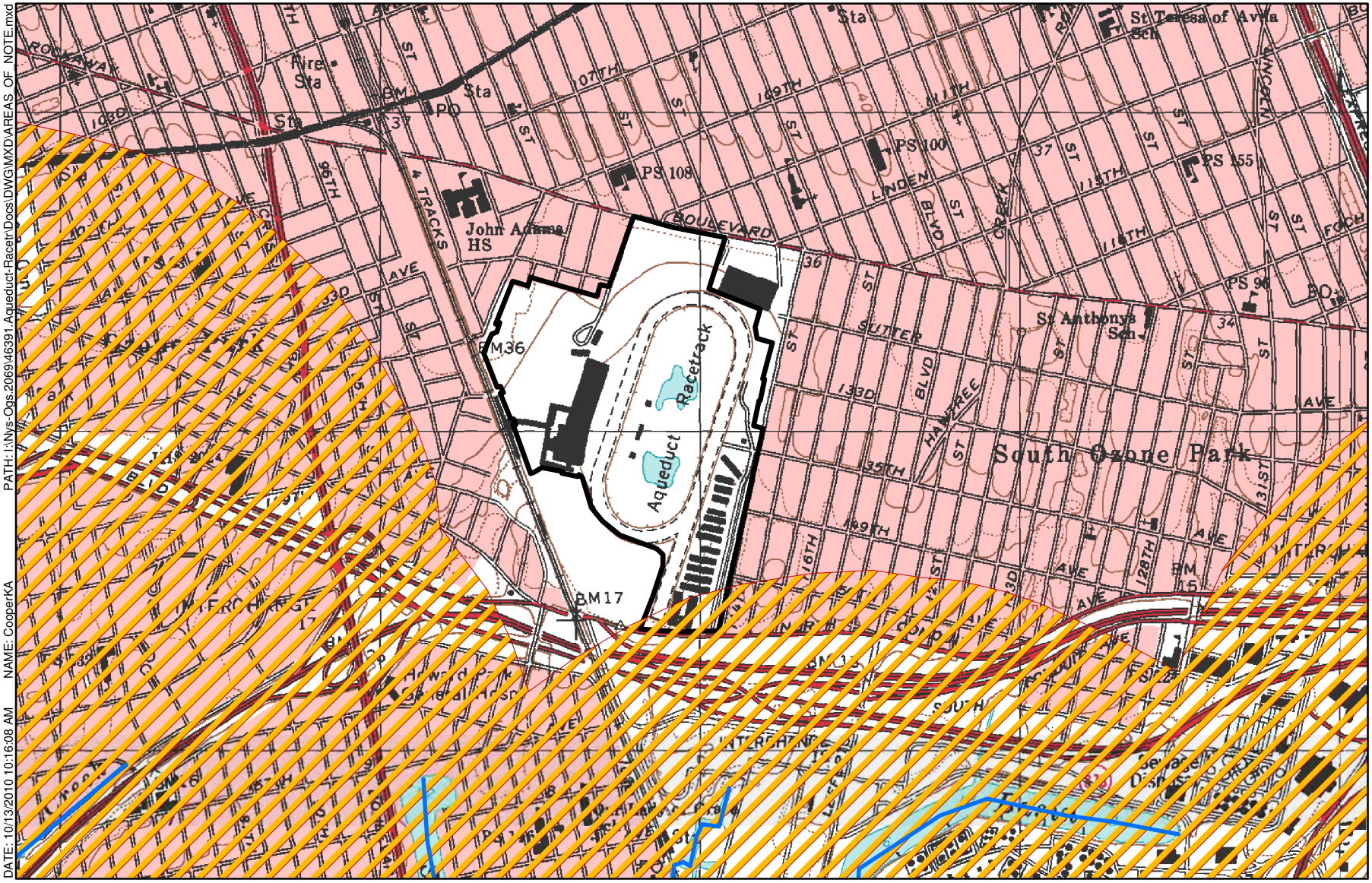
SITE AERIAL

0 500 1,000 2,000 Feet

N

FIGURE 3

O'BRIEN & GERE



LEGEND

- PROTECTED WATER BODIES
- AREAS OF POTENTIAL RARE PLANTS AND RARE ANIMALS

OCTOBER 2010
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AQUEDUCT RACETRACK
110-00 ROCKAWAY BLVD
JAMAICA, NEW YORK 11420

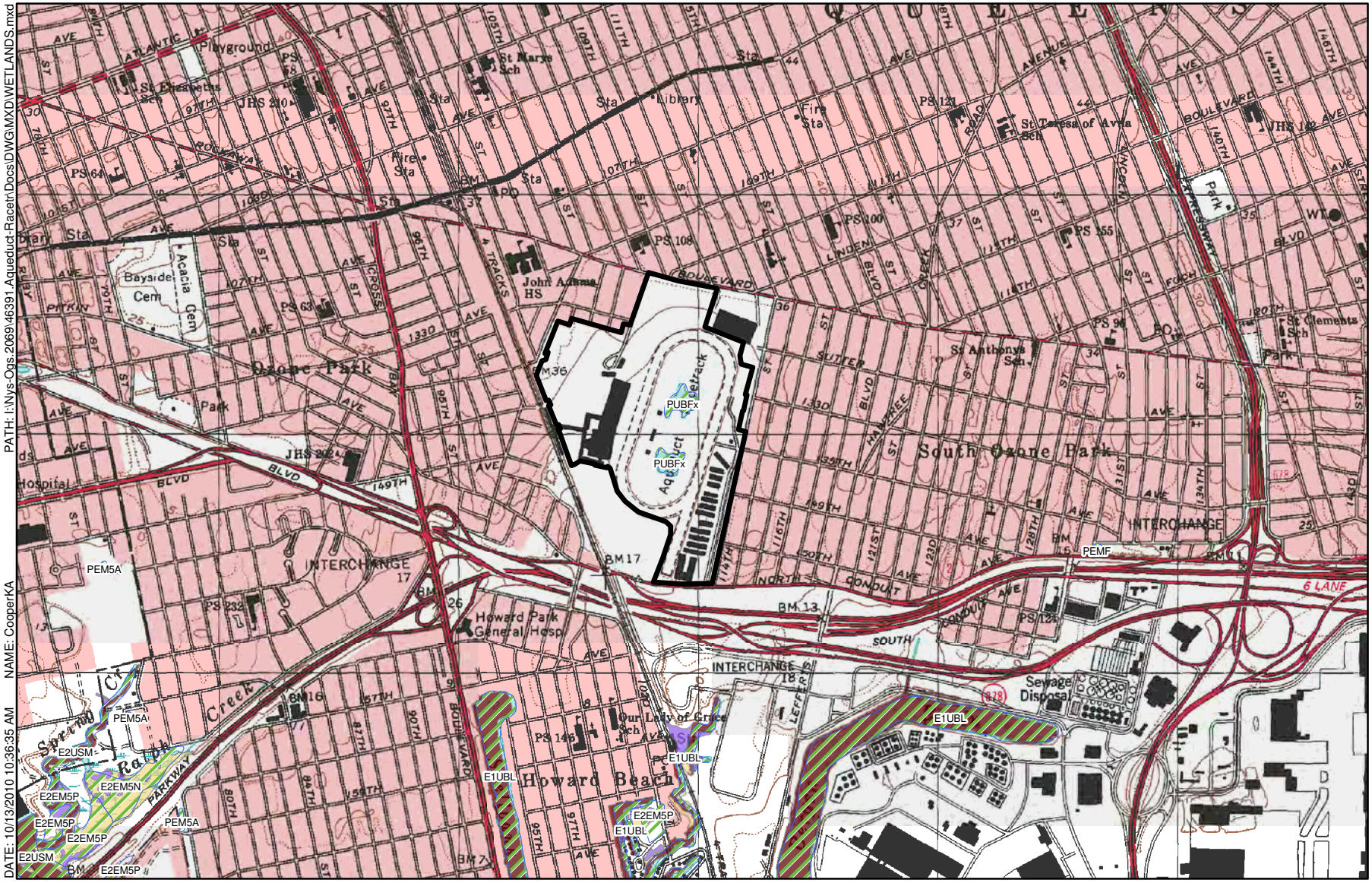
NEW YORK STATE AREAS OF NOTE

0 750 1,500 3,000
Feet

N

FIGURE 4

O'BRIEN & GERE



LEGEND

- NEW YORK FRESHWATER WETANDS
- E1UBL NATIONAL WETLAND INVENTORY

NEW YORK STATE TIDAL WETLANDS

- HIGH MARSH
- INTERTIDAL MARSH
- LATTORAL ZONE

AQUEDUCT RACETRACK
110-00 ROCKAWAY BLVD
JAMAICA, NEW YORK 11420

NEW YORK STATE WETLANDS & NATIONAL WETLAND INVENTORY

0 1,000 2,000 4,000
Feet

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FIGURE 5

OCTOBER 2010
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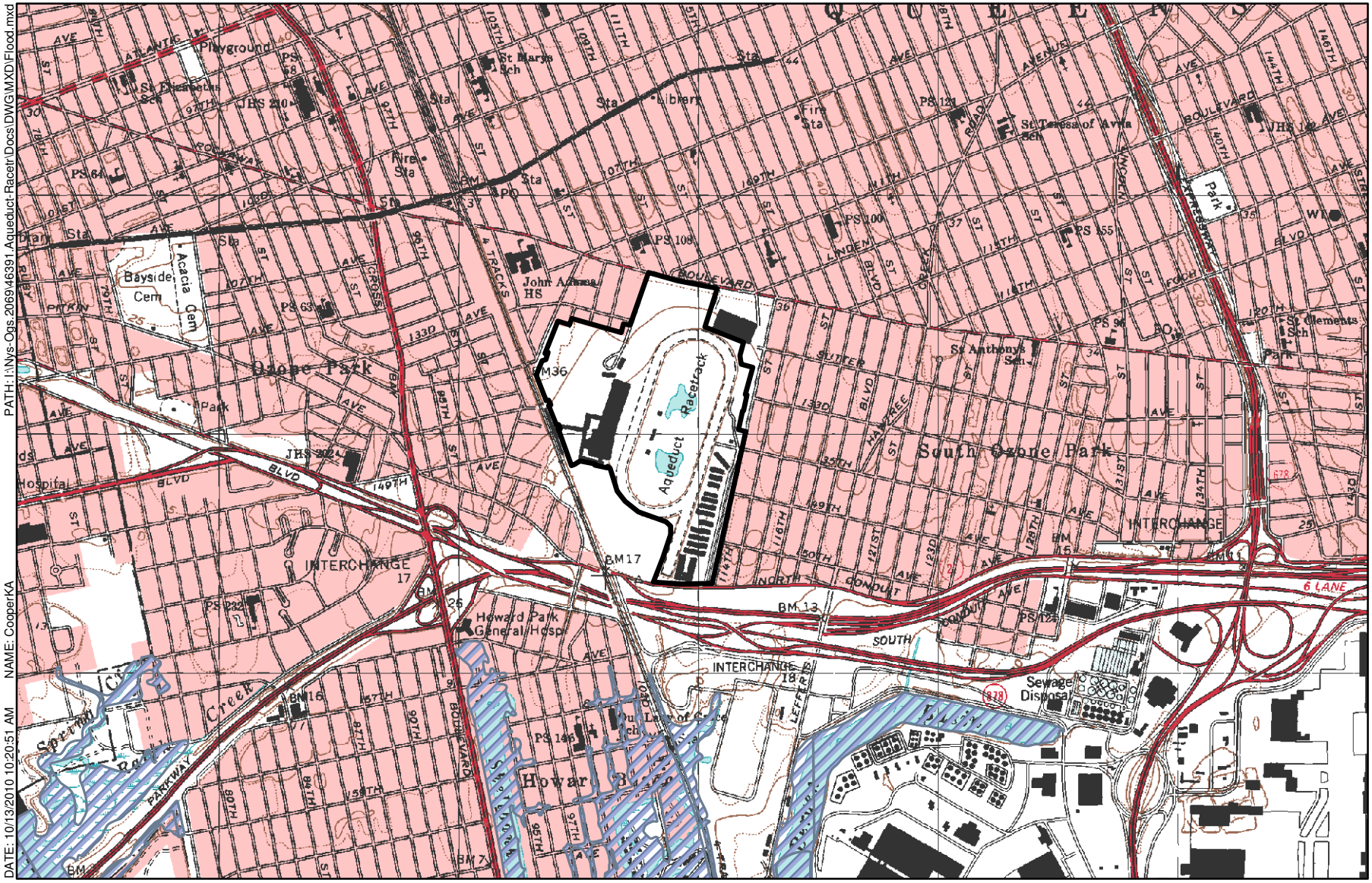
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DATE: 10/13/2010 10:20:51 AM
Aqueduct
Racetrack
South Ozone Park
Ozone Park
Howard Beach
INTERCHANGE 17
INTERCHANGE 18
Howard Park General Hosp
John Adams HS
St Anthony's Sch
St Clements Sch
St Theresa of Avila Sch
St Thomas Aquinas Sch
St Marys Sch
Bayside Cem
Acacia Cem
Sewage Disposal
Fire Sta
Library
Hospital
Playground
Park
Creek
6 LANE
BM36
BM17
BM13
BM16
BM7
BM26
LEGEND
prop line 101310
100-YR FLOOD ZONE
AQUEDUCT RACETRACK
110-00 ROCKAWAY BLVD
JAMAICA, NEW YORK 11420
FEMA FLOOD ZONE
0
1,000
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4,000
Feet
N
FIGURE 6
OCTOBER 2010
2069.46391
O'BRIEN & GERE

FIGURE 7

PROJECT LIBERTY **AERIAL PERSPECTIVE**

Resorts World AQUEDUCT NEW YORK

Project Description

NEW YORK STATE DIVISION OF THE LOTTERY
DEVELOPMENT AND OPERATION OF A VIDEO LOTTERY FACILITY AT AQUEDUCT RACETRACK
JAMAICA (BOROUGH OF QUEENS), NEW YORK

PROJECT DESCRIPTION

The New York State Division of the Lottery (NY Lottery) has initiated a coordinated review under the State Environmental Quality Review Act (SEQRA) to assess potential environmental and socio-economic impacts from the installation and operation of Video Lottery Terminals (VLTs) at the existing Aqueduct Racetrack in Queens, NY. The New York Lottery has completed similar programs at other equestrian racetracks around the State.

In accordance with SEQRA, NY Lottery, working through its agent – the New York State Office of General Services (NYSOGS) is evaluating whether or not proposed project elements would result in significant adverse impacts. To support the project, the NY Lottery proposes the following site modifications, which will be coordinated by Genting New York, LLC (GeNY):

- The installation of 4,500± VLTs
- Interior and exterior renovations of the existing Grandstand and Clubhouse building to accommodate the VLTs and food and beverage program supporting a VLT gaming facility
- Construction of a new building entrance (Porte-Cochere)
- Construction of an eight-story, 2,858± vehicle parking garage and repaving of existing surface parking
- Construction of a pedestrian bridge to connect the facility to an existing transit station.
- Utility connections (*i.e.,* service connections, upgrades)
- Improvements to existing on and off-site roadways consisting of onsite circulation improvements, removal of entrance booths on Rockaway Blvd., and off-site signalization changes
- Construction of a 6,000± square foot electrical service building (transformer enclosure and related switchgear)
- Modifications to the existing storm water management system

EAF Part 3/ Supplemental Assessment

NEW YORK STATE DIVISION OF THE LOTTERY
DEVELOPMENT AND OPERATION OF A VIDEO LOTTERY FACILITY AT AQUEDUCT RACETRACK
JAMAICA (BOROUGH OF QUEENS), NEW YORK

EAF PART 3/SUPPLEMENTAL ASSESSMENT

The New York State Division of the Lottery (NY Lottery) has initiated a coordinated review under the State Environmental Quality Review Act (SEQRA) to assess potential environmental and socio-economic impacts from the installation and operation of Video Lottery Terminals (VLTs) at the existing Aqueduct Racetrack in Queens, NY. The NY Lottery has completed similar programs at other equestrian racetracks around the State.

In accordance with SEQRA, NY Lottery, working through its agent – the New York State Office of General Services (NYSOGS) is evaluating whether or not proposed project elements would result in significant adverse impacts. The proposed site modifications and project improvements to support the project will be coordinated by Genting New York, LLC (GeNY).

O'Brien & Gere Engineers, Inc. (O'Brien & Gere) prepared this environmental assessment on behalf of NYSOGS. Issues evaluated in this assessment are consistent with questions identified on Part 2 of the EAF (Project Impacts & Their Magnitude), with information provided to assist the Lead Agency in evaluating potential project-related impacts and practicable project improvements pursuant to SEQRA. NY Lottery and its contractors will implement project improvements and other measures to adequately reduce or eliminate impacts such that the project will not result in significant adverse impacts on the environment. Additional information (*i.e.*, mapping, database searches) referenced in Part 1 of the EAF is provided in figures and attachments.

Information to assist the SEQRA Lead Agency in completing Part 2 (Project Impacts & Their Magnitude) of the Full EAF is provided below. For each major section (*i.e.*, "Impact On Land", "Impact On Water", *etc.*) of Part 2, the Part 2 question is repeated followed by responses to each sub-question.

IMPACT ON LAND

1. Will the proposed action result in a physical change to the project site?

   - **Yes.** The action proposes the following site modifications, which will be coordinated by GeNY:
     - The installation of 4,500± VLTs
     - Interior and exterior renovations of the existing Grandstand and Clubhouse building to accommodate the VLTs and food and beverage program supporting a VLT gaming facility
     - Construction of a new building entrance (Porte-Cochere)
     - Construction of an eight-story, 2,858± vehicle parking garage and repaving of existing surface parking
     - Construction of a pedestrian bridge to connect the facility to an existing transit station
     - Utility connections (*i.e.,* service connections, upgrades)
     - Improvements to existing on and off-site roadways consisting of onsite circulation improvements, removal of entrance booths on Rockaway Blvd., and off-site signalization changes
     - Construction of a 6,000± square foot electrical service building (transformer enclosure and related switchgear)
     - Modifications to the existing storm water management system

     Based on the information provided by GeNY, the existing and proposed site conditions are summarized below.

Existing vs. Proposed Conditions at Aqueduct Racetrack*			
	Existing Acreage	**Proposed Acreage**	**Net Change**
Overall Site	173.8±	173.8±	0
Lease Area (Project Site)	66±	66±	0
Lawn/Landscaping	74.4±	68.0±	-6.4±[1]
Other Pervious Area	26.9±	44.1±	17.2±[1]
Paved Area	65.2±	48.1±	-17.2±
Building Coverage	7.3±	13.6±	6.3±

*Based on information provided by GeNY.

[1]Overall increase in pervious area (lawn/landscaping & other pervious area such as landscaped parking islands) is approximately 10.8± acres (17.2 acres – 6.4 acres).

- The project could continue for more than 1-year (*i.e.*, 18± months).
- With regard to specific impact thresholds identified on Part 2 of the Full EAF:
  - Slopes within the limits of construction are less than 10%.
  - Depth to the water table is typically greater than 3-feet.
  - No construction of paved parking area for 1,000 or more vehicles will be involved with the project. (The project will result in the construction of an eight-story, 2,858± vehicle parking garage and repaving of existing surface parking spaces. With the addition of the parking garage, existing parking spaces will increase from 6,280± spaces to 7,000± spaces, a net increase of 720± spaces.)
  - No construction will occur on land where bedrock is exposed or generally within 3-feet of existing ground surface.
  - There will be no excavation for mining purposes.
  - There will be no construction or expansion of a sanitary landfill.
  - There will be no construction in a designated floodway.

Impact Assessment. Storm water runoff from the project site will be collected and discharged to the Jamaica Sewage Treatment Plant (see Attachment 3D) via a connection to the existing combined sewer. Water quality treatment of the runoff will be provided for at the treatment plant; and, as confirmed to GeNY by the New York State Department of Environmental Conservation (NYSDEC) and New York City Department of Environmental Protection (NYCDEP) (see Attachment 3D), will not be required on the project site. The NYCDEP indicated that street sewers surrounding the project site were designed for a 5-year frequency storm, with sufficient capacity to handle flows from the modified Aqueduct site. Storm water runoff during >5-year storm events will be managed through the installation of four, 50,000 gallon underground storage chambers designed to reduce peak runoff rates from the site to the City's combined 5-year storm sewer system per NYCDEP regulations and guidelines. Tank locations will be proximate to existing storm water mains on-site. The NYCDEP and NYSDEC confirmed that coverage under the NYSDEC's State Pollutant Discharge Elimination System (SPDES) *General Permit for Storm Water Runoff from Construction Activity* (GP-0-10-001), as well as preparation of a Storm Water Pollution Prevention Plan (SWPPP) will not be necessary. GeNY will prepare an Erosion and Sedimentation Control (E&SC) Plan to maximize erosion control and minimize nutrient and sediment run-off during construction phase activities. The E&SC plan will be prepared in conformance with the *New York Standards and Specifications for Erosion and Sediment Control* (NYSDEC 2005) and the *New York State Stormwater Management Design Manual* (the Design Manual) prepared by the Center for Watershed Protection for the NYSDEC (2008). Based on discussions with the NYSDEC and NYCDEP and

proposed storm water management related improvements, the project would not result in adverse impacts on land resources due to site alteration activities.

2. Will there be an effect to any unique or unusual land forms found on the site (*i.e.*, cliffs, dunes, geological formations, *etc.*)?

   - **No.** Unique or unusual land forms are not present on the site.

   Impact Assessment. No adverse impacts to unique land forms were identified that would require project change or improvements.

IMPACT ON WATER

3. Will the project affect any water body designated as protected (under Articles 15, 24, 25 of the Environmental Conservation Law, ECL)?

   - **No.** The limits of disturbance do not include any State-protected water bodies (see Figure 5).
   - With regard to specific impact thresholds identified on Part 2 of the Full EAF:
     - The developable area of the site does not contain a protected water body.
     - There will be no dredging of material from the channel of a protected stream.
     - Extension of utility distribution facilities will not pass through a protected water body.
     - There will be no construction in a designated freshwater or tidal wetland.

   Impact Assessment. No adverse impacts on State-protected water bodies were identified that would require project change or improvements.

4. Will the project affect any non-protected existing or new body of water?

   - **No.** The limits of disturbance do not include any non-protected existing or new body of water. Site modifications will decrease storm water runoff (*i.e.*, increase in pervious lawn/landscaped areas; decrease in impervious area). As noted above, construction phase-related storm water runoff will be managed pursuant to an E&SC Plan to be prepared and implemented by GeNY. During operations, storm water quantities will be detained in four, 50,000 gallon underground storage chambers designed to support flow to the City's combined 5-year storm sewer system prior to conveyance to, and treatment at, the municipal wastewater treatment plant.
   - With regard to specific impact thresholds identified on Part 2 of the Full EAF:
     - A 10% increase or decrease in the surface area of any body of water or more than a 10-acre increase or decrease will not occur.
     - There will be no construction of a body of water that exceeds 10-acres of surface area.

   Impact Assessment. Implementation of the proposed storm water management program will eliminate potential adverse impacts on and from storm water runoff.

5. Will the project affect surface or groundwater quality or quantity?

   - **Yes.** Construction activities will temporarily expose soil within the limits of disturbance. As noted above, storm water runoff during construction activities will be managed to minimize potential impacts on surface or ground water quality and quantity.

In addition, the use of emergency standby power during the operational phase will be provided by diesel powered generators, with fuel storage likely exceeding 1,100 gallons.[1] During the operational phase, the use of generators will be limited to support of operations until permanent electrical services connections are completed, emergency situations when primary power is lost, as well as periodic maintenance testing (*i.e.*, two times per month). Temporary construction phase generators will be fueled by either diesel or natural gas. To prevent surface or groundwater impacts from leaks or spills, fuel oil fired emergency generator sets will be required to have secondary containment and leak detection mechanisms. In addition, because the storage of fuel is over 1,320 gallons, GeNY will prepare and implement a Spill Control and Countermeasure (SPCC) Plan (see also Noise and Odor Impacts).

- With regard to specific impact thresholds identified on Part 2 of the Full EAF:
  - The proposed action does not require the use of a source of water that does not have approval to serve proposed (project) action.
  - The proposed action does not require water supply from wells with greater than 45 gallons per minute pumping capacity.
  - Construction or operation will not cause any contamination of a water supply system.
  - Proposed action will not adversely affect groundwater.
  - Liquid effluent will not be conveyed off the site to facilities which presently do not exist or have inadequate capacity.
  - The proposed action will use water in excess of 20,000 gallons per day (adequate capacity is available, see Attachment 3D).
  - The proposed action will not cause siltation or other discharge into an existing body of water to the extent that there will be an obvious visual contrast to natural conditions.
  - The proposed action will not allow residential uses in areas without water and/or sewer services.
  - The proposed action will not locate commercial and/or industrial uses which may require new or expansion of existing waste treatment and/or storage facilities.

Impact Assessment. Fuel oil fired emergency generator sets will be required to be provided with secondary containment. Storage over 1,320 gallons will require the preparation and implementation of an SPCC Plan by GeNY. Implementation of the proposed storm water management program will eliminate potential adverse impacts on and from storm water runoff.

6. Will the project alter drainage flow or patterns, or surface water runoff?

- **Yes.** Construction activities will temporarily expose soil within the limits of disturbance. Exposed areas not utilized for buildings or other impervious areas will be stabilized through seeding and landscaping. As noted above, storm water runoff during construction and operation phase activities will be managed to minimize potential impacts on surface or ground water quality and quantity.
- With regard to specific impact thresholds identified on Part 2 of the Full EAF:
  - The proposed action will not change flood water flows.
  - The proposed action is compatible with existing drainage patterns.

[1] It is anticipated that if a diesel fuel generator is used during construction, the tank will be approximately 250 gallons. During operations, two, 15,000 gallons aboveground storage tanks are proposed.

- The proposed action will not allow development in a designated floodway.

Impact Assessment. Implementation of the proposed storm water management program will eliminate potential adverse impacts on and from storm water runoff.

IMPACT ON AIR

7. Will the project affect air quality?

- **Yes.** The project will result in air emissions during construction and operation phases, as well as mobile source emissions from patrons and workers accessing and egressing the site and parking garage. The proposed project modifications will not result in the potential for adverse impacts on the existing air quality of the area. No facilities requiring an air emission permit from the NYSDEC are proposed; bathroom and kitchen vents and HVAC systems, which already exist at the site, are considered trivial and exempt emissions by New York State. Potential dust generation during construction phase activities will be minimized by implementation of dust control measures such as minimizing site disturbance, E&SC, and water spraying. Impacts from greenhouse gases (GHG)[2] were evaluated. The resulting report, which is included as Attachment 3B, concluded that the project will not result in adverse impacts.
- The proposed action will induce 1,000 or more vehicle trips in any given hour.[3] To minimize traffic-related delays (*i.e.*, insufficient levels-of-service and increased queuing of vehicles resulting in idling of vehicles and increased emissions), a traffic impact study (Attachment 3E) was performed. The resulting report identified specific traffic-related improvements that eliminate unacceptable levels-of-service on area roads. These proposed off-site improvements, along with on-site circulation design improvements proposed by GeNY, will maintain adequate traffic flow on- and off-site, minimizing the potential for queued and idling vehicles. Proposed improvements are summarized in the section entitled "Impacts on Transportation." In addition, the on-site parking garage will be designed in accordance with New York State building code requirements to provide for proper air circulation. GeNY proposes an open walled design to further facilitate appropriate ventilation.
- During construction, the GeNY contractors will take reasonable measures to ensure that equipment (*i.e.*, machinery, generators) and practices comply with those practices known to reduce particulate matter emissions. Requirements for reduction of construction related emissions will be included in construction contracts for the project.
- With regard to specific impact thresholds identified on Part 2 of the Full EAF:
  - The proposed action will not result in the incineration of more than 1 ton of refuse per hour.
  - The proposed action will not involve facilities with emission rates of total contaminants that exceed 5 lbs. per hour or a heat source that produces *more* than 10 million BTUs per hour.
  - The proposed action will not allow an increase in the amount of land committed to industrial use.
  - The proposed action will not allow an increase in the density of industrial development within existing industrial areas.

[2] The GHG evaluation (Attachment 3D) was performed in accordance with the NYSDEC's *Guide for Assessing Energy Use and Greenhouse Gas Emissions in an Environmental Impact Statement*.

[3] Peak traffic levels are based on periodic concurrent VLT operations and seasonal horse racing events, as well as during special events (*i.e.*, opening day). In addition, delivery trucks will periodically access and egress the site, but are not anticipated to coincide with peak patron hours. Emissions from snow plows, street and sidewalk cleaners, limousines, shuttle buses, utility vans and yard vehicles are expected to be small compared to patron travel.

Impact Assessment. No adverse impacts were identified that would require project change or improvements.

IMPACT ON PLANTS AND ANIMALS

8. Will the project affect any threatened or endangered species?

   - **No.** No adverse impacts on plants and animals were identified. Based on a current review of the United States Fish & Wildlife Service's website (www.fws.gov/northeast/nyfo/es/CountyLists/QueensDEC2006.htm), the following species are listed as federally-listed endangered (E) and threatened (T) species and candidate species: piping plover (T), roseate tern (E), seabeach amaranth(T) and shortnose sturgeon (E). These species are coastal bird/fish species, which are not expected to be present (verified by site reconnaissance) on the project site. Consequently, adverse environmental impacts on such species are unlikely.
   - With regard to specific impact thresholds identified on Part 2 of the Full EAF:
     - » No species listed on the New York or Federal list are known to use the site.
     - » No portion of a critical or significant wildlife habitat will be removed.
     - » Pesticide or herbicide for lawn and foliage is expected to be applied more than twice a year, but will be accomplished in accordance with applicable regulations and manufacturer's labels.

   Impact Assessment. No adverse impacts on threatened or endangered species were identified that would require project change or improvements.

9. Will the project substantially affect non-threatened or non-endangered species?

   - **No.** No significant alteration of areas substantially characterized by natural flora is proposed. Common fauna species will continue to utilize the site. Based on GeNY's preliminary design, the project will result in a net decrease of lawn/landscaped area (approximately 6.4± acres).[4] However, approximately 68± acres of lawn/landscaped area will remain, which will continue to provide habitat and parcel-to-parcel corridor access to common species.
   - With regard to specific impact thresholds identified on Part 2 of the Full EAF:
     - » The proposed action will not interfere with any resident or migratory fish, shellfish or wildlife species.
     - » The proposed action will not require the removal of more than 10-acres of mature forest (over 100-years of age) or other locally important vegetation.

   Impact Assessment. No adverse impacts on non-threatened or non-endangered species were identified that would require project change or improvements.

IMPACT ON AGRICULTURAL LAND RESOURCES

10. Will the project affect agricultural land resources?

    - **No.** The project is neither located in a County-designated Agricultural District, nor on land operated for agricultural purposes.

[4] Based on GeNY's preliminary design, existing overall site lawn/landscaped area (74.4± acres of the total 174± acres encompassing the Aqueduct site) will be reduced by approximately 8.5% to 68± acres under proposed conditions. Approximately 10.8± acres of lawn/landscaped area will be located within the project limits (*i.e.*, within the 66± acres associated with the VLT project; exclusive of the existing horse racing facility grounds). Additional pervious area (*i.e.*, landscaped parking islands, *etc.*) will increase by approximately 17± acres over proposed conditions, which will result in an overall net increase in lawn/landscaped area/other pervious area between existing and proposed conditions (+10± acres).

- With regard to specific impact thresholds identified on Part 2 of the Full EAF:
  - The proposed action will not sever, cross or limit access to agricultural land (includes cropland, hayfields, pasture, vineyard, orchard, *etc.*).
  - Construction activity will not excavate or compact the soil profile of agricultural land.
  - The proposed action will not irreversibly convert more than 10-acres of agricultural land or, if located in an Agricultural District, more than 2.5 acres of agricultural land.
  - The proposed action will not disrupt or prevent installation of agricultural land management systems (*e.g.*, subsurface drain lines, outlet ditches, strip cropping); or create a need for such measures (*e.g.*, cause a farm field to drain poorly due to increased runoff).

Impact Assessment. No adverse impacts on agricultural land resources were identified that would require project change or improvements.

IMPACT ON AESTHETIC RESOURCES

11. Will the project affect aesthetic resources?

- **No.** While the project will add site lighting for safety and security, GeNY proposes to incorporate specifications (*i.e.*, shielded lighting, specifying areas of illumination and timing) to prevent light spillover onto adjacent properties. GeNY prepared a photometric plan to identify light intensity levels within the site and along site boundaries. Based on the lighting and photometric plans (see Attachment 3G), light levels along the site perimeter average less than 1 foot-candle[5] (*i.e.*, light fixtures in the vicinity are not projecting light onto the ground surface at that location).[6]

  The proposed height of the eight-story parking garage is approximately 80± feet (shorter than the tallest existing building). Based on GeNY's preliminary design, the ground floor of the garage will be constructed below existing grade to further minimize aesthetic impacts. The tallest proposed structure will be a portion of the revised façade at the entrance to the existing Grandstand/Clubhouse building. The height of the tallest portion of the new facade (see Figure 7) will be approximately 150± feet; 50± feet above the height of the existing building at that location (100± feet). The lighting for the new facade will be internal; folding onto itself such that it will not be reflecting onto adjacent properties.

- With regard to specific impact thresholds identified on Part 2 of the Full EAF:
  - Proposed land uses or project components are not obviously different from or in sharp contrast to current surrounding land use patterns, whether man-made or natural.
  - Proposed land uses or project components visible to users of aesthetic resources will not eliminate or significantly reduce their enjoyment of the aesthetic qualities of that resource.
  - Project components will not result in the elimination or significant screening of scenic views known to be important to the area.

Impact Assessment. No adverse impacts on aesthetic resources were identified that would require project change or improvements.

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[5] One foot candle equals the amount of illumination the inside surface of a 1-foot radius sphere would be receiving if there were a uniform point source of one candela in the exact center of the sphere. A common candle emits light with a luminous intensity of roughly one candela.

[6] It is noted that ambient light will still be visible from unobstructed off-site views toward the site. These conditions exist now under current operations. The conceptual design proposed by GeNY includes perimeter plantings to reduce impacts from site-related ambient light.

IMPACT ON HISTORIC AND ARCHAEOLOGICAL RESOURCES

12. Will the project impact any site or structure of historic, prehistoric or paleontological importance?

- **No.** Although the project is located in an archaeologically sensitive area, no significant cultural resources have been identified to date. Consultation with the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) will continue in order to comply with Section 14.09 of the State Historic Preservation Act. Based on previous coordination with OPRHP, it was identified that the depth of fill over possible original soils will not allow the standard testing approach, but that a Letter of Resolution (LOR), which may require a Monitoring Plan, has been executed (Attachment 3C), which ensures that the project will be archaeologically monitored if necessary and that any deposits found will be addressed appropriately in consultation with OPRHP.
- With regard to specific impact thresholds identified on Part 2 of the Full EAF:
  - The proposed action will not occur wholly or partially within or substantially contiguous to any facility or site listed on the State or National Register of Historic Places (source: http://nysparks.state.ny.us/shpo/online-tools/).

Impact Assessment. Significant adverse impacts on archaeological resources will be avoided by adherence to the conditions set forth in the LOR signed by NY Lottery, NYSOGS, GeNY, and OPRHP (Attachment 3C). The conditions include the implementation of a Monitoring Plan, if required by OPRHP, to ensure that any potential resources that may exist in areas to be disturbed on the site will be adequately protected during construction. No adverse impacts to historic impacts were identified that would require project change or improvements.

IMPACT ON OPEN SPACE & RECREATION

13. Will the project affect the quantity or quality of existing or future open spaces or recreational opportunities?

- **No.** The site is not located in an area designated as open space in the New York State's Open Space Conservation Plan (2009). A seasonal outdoor flea market operates in a portion of the existing racetrack parking lot. The lease of the current flea market expires in December 2010 and will not be renewed. While the addition of the VLTs represents a change in the type of operations, it is consistent with the existing gaming activities at the site.
- With regard to specific impact thresholds identified on Part 2 of the Full EAF:
  - There will be no permanent foreclosure of a future recreational opportunity.
  - There will be no reduction of an open space important to the community.

Impact Assessment. No adverse impacts on open space and recreation were identified that would require project change or improvements.

IMPACT ON CRITICAL ENVIRONMENTAL AREAS

14. Will the project impact the exceptional or unique characteristics of a critical environmental area (CEA) established pursuant to subdivision 6 NYCRR 617.14(g)?

- **No.** The project site is not located on or substantially contiguous to a CEA designated pursuant to Article 8 of the Environmental Conservation Law (ECL). Based on a review of the NYSDEC's CEA listings for Queens County (www.dec.ny.gov/permits/25142.htm), Jamaica Bay was identified as the only established CEA. Because no CEAs are located in the vicinity of the project site, no impacts on CEAs are anticipated.

Impact Assessment. No adverse impacts on CEAs were identified that would require project change or improvements.

IMPACT ON TRANSPORTATION

15. Will there be any effect to existing transportation systems?

- **Yes.** A traffic impact study was prepared by Philip Habib and Associates in 2009, with an update to the analysis prepared in 2010 to incorporate the GeNY-specific project elements. Both the 2009 study and 2010 update are included in Attachment 3E. The 2009 study incorporated traffic improvement measures at a total of three intersections to accommodate project-generated demand. As discussed in more detail in the updated traffic impact study provided in Attachment 3E, the same types of improvements as incorporated in the 2009 study were found to remain effective to avoid potential impacts associated with the project as proposed by GeNY in 2010. Two proposed intersection improvements are essentially the same as those previously proposed in 2009, while a third improvement proposed in 2009 at Cross Bay Boulevard at Pitkin Avenue was found to no longer be needed.[7] The evaluation concluded that the following intersection improvements are needed:

  - *Rockaway Boulevard at Aqueduct Driveway/108th Street*. At this location, modification of the intersection's signal plan is proposed to provide a new lagging westbound phase that will facilitate the westbound left-turn movement into the project site. In addition, it is proposed to formalize the racetrack exit driveway at this intersection to provide three northbound lanes with markings for left-turn, left-right, and right-turn lanes, each 11 feet in width. New left-turn signal heads would be added to the existing installation for the lagging westbound phase along with the intersection approach improvements on the project site.

  - *Rockaway Boulevard at Linden Boulevard.* At this location, modification of the intersection's signalization is proposed to add an eastbound and westbound exclusive left-turn phase along with a concurrent southbound right-turn phase. Twelve seconds of signal time would be transferred to this new phase from the existing eastbound/westbound phase. Exclusive lanes already exist for both movements and no changes to the intersection's lane markings would be necessary. New left-turn and right-turn signal heads would be added to this intersection.

  The potential effects of proposed conditions on transit and pedestrian facilities at the Aqueduct Racetrack were also evaluated. The evaluation, also included in Attachment 3E, concluded that:

  - Given the very low level of existing demand at the two subway stations serving the project site, the additional subway trips generated by the proposed project are not expected to result in significant adverse subway station impacts in any peak hour.

  - In the future, should improvements be made to the Aqueduct Racetrack transit station immediately adjacent to the project site (*i.e.*, providing access to Queens-bound trains, providing daily service and increasing the hours of operation), it would not only have the potential to increase subway ridership, but would also potentially reduce traffic and parking demands.

  - In addition, there are four Metropolitan Transportation Authority (MTA) Bus routes operating in proximity to the project site. It is possible that when the VLTs begin operating 365 days per year at Aqueduct Racetrack, one or more of these routes could be re-routed into the project site. The schedules of several of these routes are currently based on providing minimum service frequency (*i.e.*, are not demand sensitive). Therefore, increased demand could readily be accommodated on these routes.

  - Finally, walk trips associated with both transit modes as well as walk-only trips would be distributed at various entrances around the project site. Given the relatively low level of existing pedestrian activity in the vicinity of the project site, no operational impacts to pedestrian

[7] Under the 2010 GeNY proposal, the Pitkin Avenue entrance will not be used for patron access/egress.

facilities are anticipated. GeNY proposes to maintain bicycle access and accommodations on-site, which will tie-in with existing Pitkin Avenue and Linden Boulevard restricted entries.

It is the design and programmatic objective of GeNY to coordinate with MTA to re-configure and refurbish the MTA Station adjacent to the project site in a joint effort with MTA, to allow for improved transit service to and from the Aqueduct site. Proposed modifications include an elevated, enclosed, climate controlled bridge/walkway extending from the transit station to renovated Grandstand/Clubhouse building. To facilitate proposed modifications, it is anticipated that portions of the existing structures, as well as the existing ramp system, will need to be removed and/or replaced. Proposed improvements will provide expanded and enhanced transit service in a safe, accessible environment. During construction and New York Racing Association (NYRA) Aqueduct Racetrack operations, access and egress to and from the existing elevated MTA Aqueduct-North Conduit Avenue transit platform will be maintained to ensure safe patron use.

The first part of the construction work to allow for planned site improvements will involve construction of temporary egress stairs from the platform, followed by demolition of the ramp structure. The ramp will not be restored as part of the current designs for connection to the Aqueduct site. The design for the new access and interior bridge connection will be developed in conjunction with MTA. GeNY has identified programmatic goals for the renovations, which would provide for greatly improved levels of service at the station stop, as well as provisions for the station to be compliant with the Americans with Disabilities Act.

Impact Assessment. Proposed traffic-related improvements identified above are anticipated to minimize the potential occurrence of adverse impacts. Similar to existing operations, additional traffic control measures will be implemented as necessary during special events (*i.e.*, hiring of traffic enforcement agents, additional signage). The need for additional control measures will be evaluated on a case-by-case basis by GeNY's on-site transportation experts and coordinated with officials from NYRA (for racing events) and the New York City Department of Transportation (NYCDOT).

IMPACT ON ENERGY

16. Will the project affect the community's sources of fuel or energy supply?

- **Yes.** Based on the GeNY's coordination with the community's energy purveyors (Natural Gas – National Grid, Electric – ConEdison), on-site service connections will be updated to provide sufficient capacity for the project. Correspondence from the suppliers to GeNY, as well as GeNY's assessment of energy (and other utility) needs and capacities are included in Attachment 3D. While on-site upgrades to service connections will be necessary, the suppliers have indicated that these additional energy needs do not pose an adverse impact on the community's existing energy supply.
- With regard to specific impact thresholds identified on Part 2 of the Full EAF:
  - The proposed action will not cause a greater than 5% increase in the use of any form of energy in the municipality.
  - The proposed action will not require the creation or extension of an energy transmission or supply system to serve more than 50 single or two family residences or to serve a major commercial or industrial use.

Impact Assessment. No adverse impacts on energy were identified that would require project change or improvements. With the exception of natural gas service, service upgrades/connections will be accomplished on the Aqueduct site. National Grid indicated to GeNY (see Attachment 3D) that it will install 2,800± feet of 12-inch diameter high pressure gas main along 109th Street between 111th and122nd Streets. Work will be accomplished by National Grid within the highway right-of-way, with traffic maintained in accordance with a maintenance and protection of traffic plan; impacts will be short-term, lasting only the duration of the installation activities. In addition to compliance with the New York

State Energy Conservation and Construction Code (NYSECC), the project will comply with energy efficiency criteria described in Executive Order 111 (EO 111).[8]

NOISE & ODOR IMPACT

17. Will there be objectionable odors, noise, or vibration as a result of the project?

- **No.** The project will not result in an adverse increase in noise during operation of the project. Construction phase noise will be short-term. A noise impact assessment was performed to assess potential project-related construction and operation phase noise sources. A summary of the assessment and results are included in Attachment 3F.

  Construction-Phase

  The proposed renovations and VLT operations will be conducted within the existing building. Activities also include the construction of the parking garage, Porte-Cochere, and pedestrian bridge. Construction activities will result in short-term noise impacts that will be mitigated by using appropriate mufflers on vehicles and equipment. In addition, outdoor construction activities will be limited to daylight hours. The NYSDEC Program Policy "*Assessing and Mitigating Noise Impacts*."[9] suggests that limiting activity to normal workday hours is an effective measure.

  Temporary power generators will be used during the construction phase of the project, and will be fueled by either diesel or natural gas. The temporary generators will be located proximal to the building and away from off-site sensitive receptors. Use of these generators will be short-term (*i.e.*, used only during construction hours and during the construction phase).

  Operation-Phase

  The noise assessment (Attachment 3F) was performed to evaluate potential community noise impacts associated with the operation of the project, which will consist of sound from the operation of the VLTs, as well as sound from traffic entering/exiting the project site. A summary of the evaluation is provided below.

  The NYSDEC noise assessment guidance document indicates that, for a non-industrial setting, the noise during operations should not exceed ambient noise by more than 6 dBA. Therefore, the 6 dBA limit for non-industrial settings was used as the significance criteria to establish the project noise impact and the potential need for project improvements.

  Major operation phase noise sources for the project are anticipated to consist of the following:

  - vehicles entering and exiting the facility (entrance traffic),
  - vehicles traveling on-site to and from parking areas and the parking garage (on-site vehicles), and
  - operation of the VLTs
  - roofing HVAC units with evaporative coolers operating 24/7 vs. current air handler units operating 12± hours per day (seasonally)

  The potential affected environment consists of residential housing areas adjacent to the project site, the nearest of which are residential and apartment housing units adjacent to the northwest, west and southwest Aqueduct property lines and within 500 to 800 feet of the project site. To

[8] EO 111 directs State agencies to be more energy efficient and environmentally aware including the establishment of energy efficiency goals and practices.

[9] New York State Department of Environmental Conservation. Program Policy "Assessing and Mitigating Noise Impacts", DEP-00-1, February 2, 2001.

characterize the community and identify sound levels of existing noise sources, sound levels were measured at two locations adjacent to the nearest noise-sensitive receptor areas to the project site.

At each receptor, potential noise impacts from the project were assessed by comparing the predicted increase in ambient sound level due to project operations with the project noise impact significance limit of 6 dBA. Sound levels for vehicle entrance traffic were predicted based on the increase sound due to increased traffic volume. Sound levels for on-site traffic and VLT sound were predicted by acoustical modeling of noise source reference sound levels to the nearest receptor.

The maximum predicted increase in existing ambient sound levels due to the project operation was 3 dBA or less at all receptors, which is within the maximum allowable increase limit of 6 dBA.[10] Therefore, project operation is predicted to result in no adverse noise impacts on the community and project change or improvements are not required.

Emergency standby power during the operational phase will be provided by diesel powered generators. During the operational phase, the use of generators will be limited to support of operations until permanent electrical services connections are completed, emergency situations when primary power is lost, as well as periodic maintenance testing (*i.e.*, two times per month). Permanent and temporary generator sets will be housed in acoustic enclosures to attenuate noise.

Sound emitted from new roofing HVAC units is assumed not to be a major new noise source. New HVAC unit sound will be offset by the elimination of sound from existing HVAC air handler units that are to be replaced. Nine existing HVAC units are proposed for replacement by three 80-ton and fourteen 170-ton units. The new HVAC units are anticipated to include visual screening, which would also function as a barrier to sound. Furthermore, the new HVAC units will operate more efficiently and produce the same (or lower) sound level compared to the existing, older units.

- With regard to specific impact thresholds identified on Part 2 of the Full EAF:
  - Blasting will not occur within 1,500 feet of a hospital, school or other sensitive facility.
  - Odors will not occur routinely (more than one hour per day). The project does not include any new odor producing operations. Existing kitchen operations will be renovated with emissions vented through applicable roof-top vents (similar to existing operations). Trash will be collected and stored in applicable lidded trash receptacles, which will be managed on a regular basis. Grease waste odors from kitchen waste will be controlled using new underground grease tank storage systems, with periodic pump-out by a local grease collection vendor.
  - The proposed action will not remove natural barriers that would act as a noise screen. GeNY is proposing to incorporate additional landscape plantings along the site perimeter, which will further attenuate noise.

Impact Assessment. No adverse impacts from noise and odor were identified that would require project change or improvements.

IMPACT ON PUBLIC HEALTH

18. Will the project affect public health and safety?

- **No**. No adverse impacts on public health were identified.
- With regard to specific impact thresholds identified on Part 2 of the Full EAF:

[10] Based on data collected from the existing Yonkers Racetrack site, noise from interior VLT operations drops off significantly immediately outside of the building, and becomes imperceptible outside the building only a short distance away. It is noted that primary exterior noise results from traffic accessing and egressing the site.

- The proposed action is not expected to cause a risk of explosion or release of hazardous substances (*i.e.*, oil, pesticides, chemicals, radiation, etc.) in the event of accident or upset conditions, or cause a chronic low level discharge or emission.
- The proposed action will not result in the burial of "hazardous wastes" in any form (*i.e.*, toxic, poisonous, highly reactive, radioactive, irritating, infectious, *etc.*).
- The project does not include storage facilities for one million or more gallons of liquefied natural gas or other flammable liquids.
- The proposed action will not result in excavation or other disturbance within 2,000 feet of a site previously used for the disposal of solid or hazardous waste.

Impact Assessment. No adverse impacts on public health were identified that would require project change or improvements.

IMPACT ON GROWTH AND CHARACTER OF COMMUNITY OR NEIGHBORHOOD

19. Will the project affect the character of the existing community?

- **Yes.** The project will result in short-term construction-related and long-term employment opportunities.[11] In addition, the projected increased use of the site will result in an increased demand for additional community services (*e.g.*, police and fire).

  Based on discussions with the New York City Police Department, the size of the local precinct police force has dropped by 25% over the last 10 years (200 officers [previous] to 150 officers [existing]). Based on similar operations, NY Lottery estimates that approximately 3-4 incidents per week will require a response from the New York City Police Department (*i.e.*, arrests or other law enforcement involvement). Relative to proposed Aqueduct operations, the City Police Department indicated that due to force reduction, officer response time could vary depending on the urgency and number of calls received within the precinct.

- With regard to specific impact thresholds identified on Part 2 of the Full EAF:
  - The project will not result in an increase of more than 5% of the permanent population of the municipality.
  - The project will not result in an increase of more than 5% per year of the municipal budget for capital expenditures or operating services.
  - The proposed action will not conflict with officially adopted plans or goals.
  - The proposed action will not cause a change in the density of land use.
  - The proposed action will not set an important precedent for future projects.

Impact Assessment. GeNY has reported that security provisions will be implemented during construction, and once the facility is operational there will be a dedicated security team in place. This security team is expected to include approximately 14 security personnel during operating hours and 6 to 8 facility personnel during non-operating hours. In addition, it is expected that at least one or more security guards on duty for each shift will be trained EMTs. The on-site security force will act as first responders to on-site incidents; off-site support will be requested on an as-needed basis. Taking into account the low number of incidents GeNY has reported at similar facilities, adverse impacts from Aqueduct operations on existing City resources are not anticipated.

[11] GeNY estimates approximately 500± new construction phase (temporary) jobs and 830± new operation phase (permanent) jobs.

20. Is there, or is there likely to be, public controversy related to potential adverse environmental impacts?

- **No.** Adverse impacts were not identified. Project sponsors have coordinated with community officials, as well as the Community 10 Board, which has an advisory role in matters relating to their community's welfare.

Supporting Information

Storm Water Impact Evaluation

FROM: Stephen Snell, P.E., CPESC

RE: Storm Water Impact Evaluation
Development and Operation of a Video Lottery Facility at Aqueduct Racetrack
New York State Office of General Services (NYSOGS)

FILE: 2069/46391

DATE: October 15, 2010

EXISTING CONDITIONS

The existing Aqueduct Racetrack consists of approximately 7-acres of buildings, 65-acres of parking lots and paved areas, 74-acres of lawn and landscaping that includes the track and field, and 27-acres of other pervious surfaces. Based on the information provided by NYSOGS, storm water runoff from the site is generally collected by an on-site storm sewer collection system with associated catch basin inlets that convey drainage in the southerly direction just west of the existing Grandstand and Clubhouse Building to an existing 30-inch diameter storm sewer under railroad tracks located south of the site. An underground 10-ft wide by 7-ft 3-inch high arch opening by 400-ft long "Leaching Gallery" is connected to the on-site storm sewer system and is located south of the existing Grandstand and Clubhouse Building. This facility utilizes infiltration for the Aqueduct facility for various storm conditions.

PROPOSED SITE DEVELOPMENT

2010

To support the project, The New York State Division of the Lottery (NY Lottery) proposes the following site modifications, which will be coordinated by Genting New York, LLC (GeNY):

- The installation of 4,500± VLTs
- Interior and exterior renovations of the existing Grandstand and Clubhouse Building to accommodate the VLTs and modernized cafeteria and entertainment services
- Construction of a new building entrance (Porte-Cochere)
- Construction of an eight-story, 2,858 vehicle parking garage and repaving of existing surface parking
- Construction of a pedestrian bridge to connect the facility to an existing transit station
- Utility connections (*i.e.,* service connections, upgrades)
- Improvements to existing on and off-site roadways consisting of onsite circulation improvements, removal of entrance booths on Rockaway Blvd., and off-site signalization changes
- Construction of a 6,000 square feet electrical service building (transformer enclosure and related switchgear)
- Modifications to the existing storm water management system

Based on GeNY's preliminary design, existing overall site lawn/landscaped area (74.4± acres of the total 174± acres encompassing the Aqueduct site) will be reduced by approximately 8.5% to 68± acres under proposed conditions. Approximately 10.8± acres of lawn/landscaped area will be located within the project limits (*i.e.*, within the 65.2± acres associated with the VLT project; exclusive of the existing horse racing facility grounds). Additional pervious area (*i.e.*, landscaped parking islands, *etc.*) will increase by approximately 17± acres over proposed conditions, which will result in an overall net increase in lawn/landscaped area/other pervious area between existing and proposed conditions (+10± acres).

SUMMARY

- Development of the project will result in an overall decrease in impervious area and increase in pervious area compared to existing conditions.
- Storm water runoff from the project site will be collected and discharged to the Jamaica Sewage Treatment Plant via a connection to the existing combined sewer. Water quality treatment of the runoff will be provided for at the treatment plant; and, as confirmed to GeNY by the New York State Department of Environmental Conservation (NYSDEC) and New York City Department of Environmental Protection (NYCDEP), will not be required on the project site.
- In conversations with GeNY, the NYCDEP indicated that street sewers surrounding the project site were designed for a 5-year frequency storm, with sufficient capacity to handle flows from the modified Aqueduct site. Storm water runoff during >5-year storm events will be managed through the installation of four, 50,000 gallon underground storage chambers designed to reduce peak runoff rates from the site to the City's combined 5-year storm sewer system per NYCDEP regulations and guidelines. Tank locations will be proximate to existing storm water mains on-site.
- In conversations with GeNY, the NYCDEP and NYSDEC confirmed that coverage under the NYSDEC's State Pollutant Discharge Elimination System (SPDES) *General Permit for Storm Water Runoff from Construction Activity* (GP-0-10-001), as well as preparation of a Storm Water Pollution Prevention Plan (SWPPP) will not be necessary. GeNY will prepare an Erosion and Sedimentation Control (E&SC) Plan to maximize erosion control and minimize nutrient and sediment run-off during construction phase activities. The E&SC plan will be prepared in conformance with the *New York Standards and Specifications for Erosion and Sediment Control* (NYSDEC 2005) and the *New York State Stormwater Management Design Manual* (the Design Manual) prepared by the Center for Watershed Protection for the NYSDEC (2008).

CONCLUSION

With implementation of proposed improvements, the project will result in no significant adverse impacts related to on-site storm water runoff to offsite areas as a result of the proposed development.

Greenhouse Gas Impacts and Reduction Evaluation

FROM: Parikhit (Ricky) Sinha, Ph.D.

RE: Greenhouse Gas Impacts and Reduction Evaluation
Aqueduct Racetrack VLT Project
New York State Office of General Services (NYSOGS)

FILE: 2069/46391

DATE: October 15, 2010

This technical memorandum presents the results of a greenhouse gas (GHG) impact study for the proposed installation of Video Lottery Terminals (VLTs) at the Aqueduct Racetrack in Ozone Park in Queens, New York. The following site modifications are being proposed:

- Installation of 4,500± VLTs
- Interior and exterior renovations of the existing Grandstand and Clubhouse building to accommodate the VLTs and food and beverage program supporting a VLT gaming facility
- Construction of a new building entrance (Porte-Cochere)
- Construction of a six-story, 2,858± vehicle parking garage and repaving of existing surface parking
- Construction of a pedestrian bridge to connect the facility to an existing train station
- Utility connections (*i.e.,* service connections, upgrades)
- Improvements to existing on and off-site roadways consisting of onsite circulation improvements, removal of entrance booths on Rockaway Blvd., and off-site signalization changes
- Construction of a 6,000± square foot electrical service building (transformer enclosure and related switchgear)
- Modifications to existing storm water management system

The purpose of this study is to estimate GHG emissions associated with the future operation of the modified facility. The GHG impact study will be relied upon to assess potential impacts pursuant to the State Environmental Quality Review Act (SEQRA).

This impact study presents GHG emissions by source. Conclusions on the significance of impacts are provided in the conclusions section for the project as whole, instead of by source, to be consistent with significance thresholds established by USEPA (2009).

INTRODUCTION

Potential impacts and reduction of future GHG emissions from the project were estimated following methods in the NYSDEC (2009) *Guide for Assessing Energy Use and Greenhouse Gas Emissions in an Environmental Impact Statement* and *The Greenhouse Gas Protocol – A Corporate Accounting and Report Standard* developed by the World Resources Institute and World Business Council for Sustainable Development (WRI/WBCSD, 2004).

The GHG inventory estimates future emissions from operating the entire Aqueduct facility (including the buildings, racetrack, and parking areas) after the proposed site modifications have been made. The GHG inventory was developed with the following approach:

- Impacts were estimated for the six GHGs covered under the Kyoto protocol (United Nations, 1998): CO_2, CH_4, N_2O, HFCs, PFCs, SF_6. Emissions of these GHGs were translated into metric tons of carbon dioxide equivalent ($MTCO_2e$) using global warming potentials obtained from the Intergovernmental Panel on Climate Change (IPCC, 2007).
- The organizational boundary of the GHG inventory was based on operational control (reporting of 100% of GHG emissions from facilities or operations over which the Aqueduct facility has the authority to implement operating policies).
- The operational inventory boundary included:
  - Scope 1 - Direct emissions from stationary combustion, mobile combustion, fugitive sources, and site clearing
  - Scope 2 - Indirect emissions from purchased electricity
  - Scope 3 - Other indirect emissions from employee commuting, patron travel, and landfilled solid waste.
- Uncertainty in GHG estimates were biased toward upper bound estimates to demonstrate potential GHG impacts and to compensate for incomplete data. When needed, greenhouse gas emission parameters from Environment Canada (2006), the California Climate Action Registry (2008), and primary scientific literature have been used to supplement parameters from WRI/WBCSD (2004). In addition, electricity usage data, building and lawn/landscaped areas, refrigerator and chiller data, and solid waste and water data were obtained via a Request for Information submitted in March 2009 to the New York State Office of General Services (NYSOGS, 2009).

SCOPE 1 - DIRECT EMISSIONS

STATIONARY COMBUSTION

Potential Impacts

The modified Aqueduct facility is expected to have a number of stationary combustion sources that will provide heat, steam, hot water, and emergency power to the facility. Because proposed quantities of stationary combustion units were not available, they were estimated based on stationary combustion units considered in a related GHG impact analysis (NYSDEC, 2008), and scaled to the Aqueduct facility based on gross square footage (Table 1).

Greenhouse gas emissions from use of these stationary combustion sources were calculated using the following equation (WRI/WBCSD, 2005a):

$$E = HI \times H \times EF \times OF \times GWP \times CF \times (1 - EP)$$

where:

E – Annual emissions (metric tons CO_2E per year; 1 metric ton = 2205 lb; CO_2E = CO_2 equivalent),

HI – Maximum hourly heating input (MMBtu/hr),

H – Annual hours of operation (hr),

EF – Emission Factor (lb GHG/MMBtu; GHG: CO_2, CH_4, N_2O),

OF – Oxidation Factor (unitless),

GWP – Global Warming Potential, and

CF – Conversion factor (1 metric ton/2205 lb)

EP – Efficiency Performance Standard for compliance with Executive Order (EO) 111 (10%).

Emissions were estimated for the three GHGs (CO_2, CH_4, N_2O) relevant to the fuels combusted. Emissions were normalized to carbon dioxide equivalents (CO_2E) using global warming potentials. Total annual emissions for the entire facility from all stationary combustion sources were estimated to be 16,759 metric tons CO_2E per year (Table 1).

GHG emission estimates for stationary combustion sources represent upper bound emissions, because they are based on maximum hourly heating load.

Facility Improvements

There are several opportunities to reduce GHG emissions from stationary sources. These include lowering the thermostat in winter, using higher efficiency boilers and water heaters, improving building insulation, and commissioning of energy systems. Through measures such as these, it is expected that the modified Aqueduct facility will deliver a 10% improvement in energy efficiency performance over the NYS Energy Code for clubhouse renovations, in accordance with the requirements listed in EO 111[1] (State of New York Executive Chamber, 2007). *Net annual emissions after accounting for facility improvements were estimated to be 15,083 metric tons CO_2E per year (Table 1), or 1,676 metric tons CO_2E below the unmitigated (total) value.* When normalized for the facility square footage (1,243,017 sq. ft), net annual emissions intensity from all stationary combustion sources is 0.012 metric tons CO_2E per square foot.

MOBILE COMBUSTION EMISSIONS

Potential Impacts

For the purposes of this study, the term "mobile combustion emissions" in the context of Scope 1 (direct emissions) refers only to emissions from vehicles owned and/or maintained by Aqueduct. Emissions from employee commuting and patron travel are not included in this section; they are treated as Scope 3 (other indirect) emissions and discussed separately below.

Against this background, the Aqueduct facility currently has mobile source emissions from vehicles used to move horses and groom the track and from a shuttle bus used to ferry passengers from the parking lot to the facility entrance. The quantities, sizes, and fuel types of these sources are unknown. Potential new leased or owned mobile sources expected as a result of the proposed renovation include snow plows, street and sidewalk cleaners, limousines, shuttle buses, utility vans and yard vehicles. Given a lack of specific information available on future additional mobile sources and because emissions from these sources are expected to be small compared to patron travel, mobile source emissions are not considered in this evaluation.

FUGITIVE (NON-POINT) EMISSIONS

Potential Impacts

The expanded Aqueduct facility will have walk-in coolers, walk-in freezers, and air conditioning units. Leakage of refrigerants from these units is commonplace during normal operations. Fugitive emissions from refrigerant leakage are typically estimated using a mass balance approach in which refrigerant purchases and disposals are tracked on an annual basis and residuals (purchases - disposals) are attributed to leakage. Because such data is not available, a conservative screening estimation approach was applied using upper bound leakage rates from IPCC (2006). Fugitive emissions of refrigerants were estimated as follows:

GeNY data indicated that walk-in coolers were to be charged with MO29 (R-422D), walk-in freezers with MO79 (R-422A), and air conditioning units with R-134A. Fugitive emissions were estimated using the following equation (The Climate Registry, 2007):

[1] Under Executive Order 111, State Entities procuring leased space to fulfill their mandated program responsibilities are directed, to the best of their ability, to incorporate energy-efficient design, operations, and management practices.

$$E = RC \times LR \times GWP \times CF$$

where:

E – Annual emissions (metric tons CO_2E per year; 1 metric ton = 2205 lb; CO_2E = CO_2 equivalent),

RC – Total refrigerant charge (kg),

LR – Annual leakage rate (%),

GWP – Global warming potential,

CF – Conversion factor (1 metric ton/1000 kg).

Potential GHG emissions from leakage of refrigerants from refrigerators, freezers, and air conditioning units are estimated to be 122 metric tons CO_2E per year (Table 2).

Facility Improvements

Fugitive emissions from the expanded Aqueduct facility could be reduced through enhanced refrigerant management, which involves the selection of refrigerants and air conditioning equipment that minimize or eliminate the emission of compounds that contribute to ozone depletion and global warming by:

- avoiding installation of fire suppression systems with ozone depleting substances
- use of natural refrigerants: water, carbon dioxide, ammonia
- use of refrigerants with low ozone-depleting potential and global warming potential
- minimizing leakage rate through leakage control
- using equipment with efficient refrigerant charge
- using equipment with long service life

Because there are no plans to pursue such a strategy at this time, GHG impacts of enhanced refrigerant management are not quantified here, but represent a potential future facility improvement opportunity.

SITE CLEARING

Potential Impacts

The proposed Aqueduct facility renovation will require the removal of 6.43 acres of lawn/landscaped area. This area of landscaped lawn and shrubs is an existing carbon sink. Upon removal and potential decomposition of vegetation, stored carbon will be released back into the atmosphere as carbon dioxide. However, equivalent acreage will be restored through demolition of 6.43 acres of existing parking lot (NYSOGS, 2009). Nevertheless, potential GHG emissions from removal of lawn/landscaped area can be estimated to quantify their impact on the facility's total carbon footprint. To do this, the above-ground mass density and carbon content for North American grasslands were used (Sims et al., 1978; West, 1990-2005). The GHG emissions from site clearing were estimated using the following equation:

$$E = MD \times A \times CC \times CF_1 \times CF_2$$

where:

E – Emissions (metric tons CO_2E; 1 metric ton = 2205 lb; CO_2E = CO_2 equivalent),

MD – Mass density (kg/hectare)

CC – Carbon content (kg C/kg; dry weight)

A – Cleared Area (hectares)

CF_1 – Conversion factor (44 kg CO_2 / 12 kg C)

CF_2 – Conversion factor (0.001 kg/1 metric ton)

Unlike the other categories of GHG emissions, the emissions from site clearing are a single event, not reported on an annual, recurring basis. *Total GHG emissions from site clearing are estimated to be 8.71 metric tons CO_2 (Table 4).* GHG emission estimates from site clearing are upper bound estimates because the biomass parameters chosen in this evaluation are upper bound estimates from primary scientific literature.

Facility Improvements

As indicated above, all existing lawn/landscaped area to be removed for the construction of the project will be restored elsewhere pursuant to renovations. *In total, the facility proposes to avoid all GHG emissions from site clearing, or 8.71 metric tons of CO_2 emissions (Table 3).*

SCOPE 2 – INDIRECT EMISSIONS

ELECTRICITY CONSUMPTION

Potential Impacts

Electricity usage at the proposed Aqueduct facility will be needed primarily for the following applications:

- Lighting
- Power needs for video lottery terminals
- Power needs for other stationary equipment
- Building receptacles and other applications

Electricity needs at the proposed facility will be met primarily through the purchase of off-site grid electricity. However, EO 111 mandates a 20% renewable energy content for state facilities (State of New York Executive Chamber, 2007). This is anticipated to be fulfilled through the purchase of renewable energy credits (RECs).

The electrical demand load for each category of electricity consuming equipment, as provided by NYSOGS (2009), was used to estimate electricity usage for the clubhouse and exterior site lighting (Table 4). The electrical demand load for the parking garage was assumed to be similar to that of the exterior site lighting. CO_2 emissions from electricity usage at each complex, with the exception of the electrical service building, were calculated using the following equation:

$$E = (DL \times PF \times 1.73 \times H) \times (1 - PP) \times (1 - EP) \times (1 - REC) \times EF \times CF$$

where:

E – Annual Emissions (metric tons CO_2 per year; 1 metric ton = 2205 lb),

DL – Demand Load (kVA)

PF – Power Factor (unitless)

H – Annual Hours (h)

PP – Onsite Power Production (%)

EP – Efficiency Performance Standard for compliance with EO 111 (10%)

REC – Purchased Renewable Energy Credits (%)

EF - Emission Factor (lb CO_2/kWh; Region-specific from WRI/WBCSD, 2007)

CF – Conversion factor (1 metric ton/2205 lb)

Electricity usage for the electrical service building was estimated using data from the Commercial Buildings Energy Consumption Survey (CBECS, U.S. Department of Energy), using the following equation:

$$E = (SE \times SF) \times (1 - PP) \times (1 - EP) \times (1 - REC) \times EF \times CF$$

where:

E – Annual Emissions (metric tons CO_2 per year; 1 metric ton = 2205 lb),

SE – Specific Electricity Usage (kWh/sq. ft./yr) for warehouse/storage facility

SF – Square Footage of Facility

PP – Onsite Power Production (%)

EP – Efficiency Performance Standard for compliance with EO 111 (10%)

REC – Purchased Renewable Energy Credits (%)

EF - Emission Factor (lb CO_2/kWh; Region-specific from WRI/WBCSD, 2007)

CF – Conversion factor (1 metric ton/2205 lb)

Net GHG emissions from electricity usage were estimated to be 21,416 metric tons CO_2E per year (Table 4), after accounting for facility improvements (see below). The total emissions were normalized to the combined facility square footage of the clubhouse and electrical service building (1,249,017 sq. ft). Total annual emissions from electricity usage are 0.017 metric tons CO_2E per square foot.

GHG emission estimates for electricity usage represent upper bound emissions, because they are based on demand load with a 100% power factor and 24 hour per day usage. It is likely that not all equipment will operate at demand power at all times, nor will all equipment operate for 24 hours per day. It is anticipated that the facility will be open from 8:00 AM to 4:00 AM each day, but 24 hours per day usage was assumed as an upper bound estimate.

Facility Improvements

The proposed Aqueduct facility will deliver a 10% improvement in energy efficiency performance over the NYS Energy Code for clubhouse renovations in accordance with the requirements listed in EO 111 (State of New York Executive Chamber, 2007). This can be accomplished through energy efficient lighting, cooling, and building control systems. In the absence of EO 111 required energy efficiency performance requirements, GHG emissions from electricity usage would be an estimated 29,815 metric tons CO_2E per year. *In total, 8,399 metric tons CO_2E per year are avoided through the purchase of renewable electricity and energy efficiency (Table 4).*

SCOPE 3 – OTHER INDIRECT EMISSIONS

EMPLOYEE COMMUTING

Potential Impacts

It is estimated that the modified Aqueduct facility will employ a staff of approximately 900 employees (NYSOGS, 2004). An average commute of 12 miles each way is considered (US Census Bureau, 2004), 75% of the national average. The US Census Bureau estimates that 34% of NYC households commute by subway and 14% commute by bus. For the commuting calculation, these values are rounded to 35% and 15%, respectively. The remaining commuters are assumed to commute by car. Indirect GHG emissions from employee commuting were then estimated using the following equation:

$$E = \sum_{type} (N \times RT \times T \times P \times EF \times CF)$$

where:

E – Annual emissions (metric tons CO_2E per year; 1 metric ton = 2205 lb; CO_2E = CO_2 equivalent)

N – Number of Employees

RT – Round trip distance (miles/trip)

T – Number of trips per year (trip/year)

P – Percent traveling by each mode of transportation (car, subway, bus)

EF – Emission factor (kg CO_2/mile)

CF – Conversion factor (1 metric ton/1000 kg)

Emission factors from each type of transportation (car, subway, and bus) were obtained from WRI/WBCSD (2003). *Net annual indirect emissions from employee commuting were estimated to be 1,604 metric tons CO_2E per year (Table 5).*

The average employee commuting distance was estimated because actual data on commuting distance was not available. The US Census Bureau (2004) estimates that 25% of NYC households commute by car. This study assumes twice that value, 50%, to give a conservative estimate of commuting emissions. In addition, all cars were assumed to be single-occupancy. Thus, the commuting estimate is likely an upper bound estimate.

Net annual commuting emissions per employee are approximately 2 $MTCO_2E$ per employee. Therefore, future staff size increases would have a minimal (<1%) impact on total GHG emissions (which are discussed below).

Facility Improvements

Indirect emissions from employee commuting are reduced by the use of public transit (*i.e.,* bus, rail). If all employees commuted by single-occupancy vehicle, emissions from commuting would be 2,117 metric tons CO_2E per year (Table 5). *Thus 50% of the workforce using public transit avoids 512 metric tons CO_2E per year, or 24% of the commuting footprint (Table 5).*

PATRON TRAVEL

Potential Impacts

The expanded Aqueduct facility will be open daily year-round and anticipates approximately 8.3 million visitors per year. The patron travel calculation assumes that all patrons come from the New York City metropolitan region and half come from the city itself, since New York City has 3.4 million households versus 7.4 million in the metropolitan area (US Census Bureau, 2004). Patrons traveling from the city are assumed to travel 12 miles each way, the same assumption used for employee commuters. For patrons traveling from the rest of the metropolitan region, the travel distance is estimated to be 35 miles each way, which is approximately half the average radius of the metropolitan area (US Census Bureau, 2004).

The Traffic and Parking analysis indicated the methods of transportation used (car, taxi, local bus, intercity bus, and walk/bike) and percent of patrons using each method (Philip Habib and Associates, 2009). The Traffic and Parking analysis also indicated that an average of two (2) passengers travel in each car and/or taxi that visits the facility (NYSOGS, 2009). This information was utilized to estimate the total annual passenger miles attributable to each method of transportation. Emissions factors for each of the methods of transportation were derived from the GHG Protocols: Mobile Combustion CO_2 Emissions Calculation Tool, v1.3 (WRI/WBCSD, 2005). The emissions factor for patrons that walk/bike is assumed to be zero. The GHG emissions from patron travel are then determined as follows:

$$E = \left((N \times V_1 \times RT_1) + (N \times V_2 \times RT_2)\right) \times \left(\sum_{type} (P \times EF \times CF)_{non\,car} + \frac{(P \times EF \times CF)_{car}}{CP} \right)$$

where:

E – Annual emissions (metric tons CO_2E per year; 1 metric ton = 2205 lb; CO_2E = CO_2 equivalent)

N – Number of Patrons (people/year)

V_1 – Percent of patrons from New York City

V_2 – Percent of patrons from the NY metropolitan region outside the city

RT_1 – Round trip distance for NYC patrons (miles/trip)

RT_2 – Round trip distance for NY metro region patrons (miles/trip)

P – Percent traveling by each mode of transportation (car, subway, bus)

EF – Emission factor (kg CO_2/mile)

CF – Conversion factor (1 metric ton/1000 kg)

CP – Number of people in a carpool (passengers per car or taxi)

Net annual indirect emissions from patron travel were estimated to be 74,013 metric tons CO_2E per year (Table 6).

The patron travel calculation partitions the patrons between New York City and the metropolitan area based on the number of households in the two regions. However, it is likely that patrons living close to the Aqueduct facility would be more likely to visit than those living far away. The mileage traveled is therefore a conservative estimate.

Facility Improvements

Indirect emissions from patron travel are reduced by the use of public transit and walking/biking. If all of those patrons that are currently using public transit or walking/biking were to travel in single-occupancy vehicles, the annual emissions from patron travel would be 95,920 metric tons CO_2E per year (Table 6). *Thus, 25% of patrons traveling by public transit leads to a 21,907 metric tons CO_2E per year reduction in emissions, or 23% of the potential patron travel footprint.*

SOLID WASTE

Potential Impacts

The disposal of solid waste leads to greenhouse gas emissions from landfills. The Aqueduct facility currently disposes of 4,104 U.S. tons of waste per year. Given the increased number of patrons and operating days, the expanded facility is expected to generate more waste. Specifically, a future four-fold increase in waste production is based on an increase of operating days over the base case from a few days a week over 6 months of the year to seven days a week over 12 months of the year. The solid waste calculation yields an estimate for future waste generation of 16,416 U.S. tons per year. The GHG emissions from solid waste are then determined as follows:

$$E = HW \times (1 + PI) \times EF$$

where:

E – Annual emissions (metric tons CO_2E per year; 1 metric ton = 2205 lb; CO_2E = CO_2 equivalent)

HW – Historic waste production (U.S. tons per year)

PI – Estimated future percent increase in waste production (percent)

EF – Emissions factor for landfilled solid waste (metric tons CO_2E per U.S Ton)

Emission factors from solid waste were obtained from the USEPA (2006). *Total annual indirect emissions from solid waste were estimated to be 6,895 metric tons CO_2E per year (Table 7).*

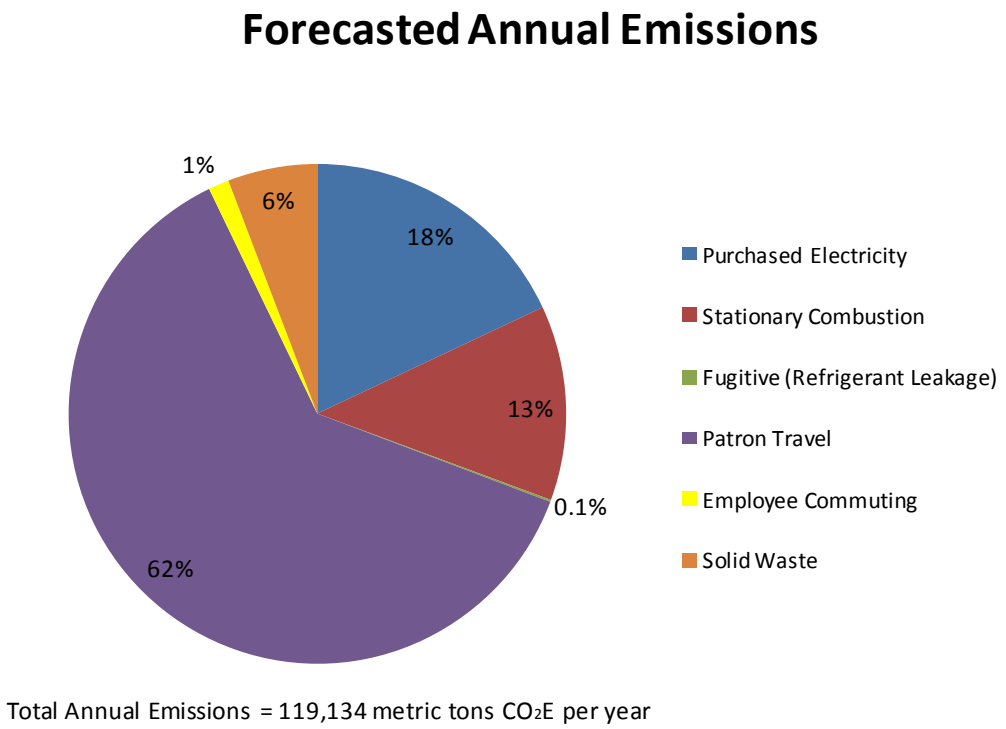
Emissions from landfilled solid waste are upper bound estimates because the solid waste emission factor is an upper bound factor, that assumes the landfill is not capturing methane. Additional uncertainty relates to the percent of solid waste that will be recycled in the proposed facility.

Facility Improvements

There are no planned facility improvements at this time that would lead to a reduction in GHG emissions from a reduction in solid waste. One possible way to effect such a reduction would be to recycle solid waste.

TOTAL GREENHOUSE GAS EMISSIONS

A summary of total GHG emissions and avoided emissions for the renovated Aqueduct facility is presented in Table 8. **Net annual GHG emissions are 119,134 metric tons CO_2E per year** (where 1 metric ton equals 1000 kg or 2205 lb), with direct emissions (Scope 1) accounting for 15,205 metric tons CO_2E per year, indirect emissions from electricity usage (Scope 2) accounting for 21,416 metric tons CO_2E per year, and other indirect emissions (Scope 3) accounting for 82,512 metric tons CO_2E per year.



Total Annual Emissions = 119,134 metric tons CO_2E per year

The net emissions intensity for the entire facility is 0.095 metric tons CO_2E per square foot. Emissions intensity for the entire facility was determined by dividing the net annual GHG emissions (119,134 metric tons CO_2E per year) by the combined gross square footage of the clubhouse and electrical service building (1,249,017 GSF).

The WRI/WBCSD (2004) greenhouse gas accounting protocols consider reporting of Scopes 1 and 2 to be mandatory and Scope 3 to be optional (WRI/WBCSD, 2004). This is particularly relevant because Scope 3 emissions account for 69% of the Aqueduct facility's total carbon footprint, which is driven primarily by

emissions from patron travel (62%; Table 8). **If the Aqueduct facility were to only account for Scope 1 and Scope 2 emissions, the total carbon footprint would be 36,621 metric tons CO_2E per year.**

For comparison, typical annual GHG emissions from a U.S. household with two passenger vehicles is 23 metric tons CO_2E per year (USEPA, 2007; transportation GHG emissions are based on U.S. Department of Transportation fuel economy values). Consequently, the estimated total annual GHG emissions from the renovated Aqueduct facility are equivalent to that of 5,180 U.S. households, when considering Scope 1, Scope 2, and Scope 3 emissions.

Annual avoided emissions are 32,494 metric tons CO_2E per year, which represents a 21% reduction from total potential annual emissions. The avoided emissions are a result of compliance with EO 111 energy efficiency performance and renewable energy criteria, and reduced transportation emissions due to proximity to public transportation. Total annual avoided emissions correspond to those from 1,413 U.S. households. Additional action resulting in lower GHG emissions is possible, should the Aqueduct facility be designed to be in compliance with EO 111 for reconstruction projects of size greater than 20,000 gross square feet (State of New York Executive Chamber, 2007).

In addition to annual GHG emissions, a one-time GHG emission from site clearing associated with facility construction is estimated to be 8.71 metric tons CO_2E. However, all of these emissions are assumed to be avoided through restoration of equivalent acreage.

CONCLUSIONS

Based on this analysis, GHG emissions from the proposed project have been reduced by 21% through proposed facility improvements related to compliance with EO 111 and proximity to public transportation. GHG emissions do not exceed federal reporting thresholds, including the 25,000 metric tons CO_2E per year threshold for mandatory reporting of greenhouse gas emissions from direct stationary combustion (Scope 1) established by the USEPA (2009). No further action is necessary.

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Aqueduct Racetrack - Video Lottery Terminals
110-00 Rockaway Blvd., Jamaica, NY 11420

Air Quality Impact - Greenhouse Gases
Table 1 - Direct Emissins From Stationary Combustion

	Units	Heating Boilers [a]	Water Heaters [b]	Emergency Generator [c]
Fuel Use Parameters				
Fuel type		Natural gas	Natural gas	#2 fuel oil
Estimated total hourly heat input[d] (HI)	MMBtu/hr	44	1.5	10.2
Annual hours[e] (H)	hr	6,600	8,760	72
Annual heat input	MMBtu	290,400	13,140	737
Emission factors				
Carbon Content[f]	lb C/MMBtu	33	33	44
CO_2 emission factor[f] (EF)	lb CO_2/MMBtu	121	121	161.3
CH_4 emission factor[f] (EF)	lb CH_4/MMBtu	0.013	0.013	0.024
N_2O emission factor[f] (EF)	lb N_2O/MMBtu	0.0003	0.0003	0.001
Oxidation factor[f] (OF)	unitless	1	1	0.99
Emissions				
CO_2 emissions	lb CO_2	35,138,400	1,589,940	117,717
CH_4 emissions	lb CH_4	3,749	170	18.0
N_2O emissions	lb N_2O	75.0	3.4	1.1
CO_2 global warming potential[f] (GWP)	Unitless	1	1	1
CH_4 global warming potential[f] (GWP)	Unitless	21	21	21
N_2O global warming potential[f] (GWP)	Unitless	310	310	310
CO_2E emissions (E)	CO_2E tpy*	15,982	723	54

GHG Emissions and Facility Improvements Summary		
Total Annual Emissions from All Sources	CO_2 E tpy	16,759
Building Scale	ft^2	1,243,017
Total Annual Emissions Intensity from All Sources	CO_2 E tpy / ft^2	1.3E-02
Efficiency Performance Reduction (EP)[g]	CO_2 E tpy	1,676
Net Annual Emissions from All Sources	CO_2 E tpy	15,083
Net Annual Emissions Intensity from All Sources	CO_2 E tpy / ft^2	1.2E-02

Methods:

$$E = HI \times H \times EF \times OF \times GWP \times CF \times (1 - EP)$$

CF = 1 metric ton/2205 lb
*tpy = metric tons per year (metric ton = 2205 lb)

Unit Conversions:
1 kW = 3.4 Mbtu/hr

Notes:

a - Based on a related New York State facility GHG Inventory (NYSDEC, 2008), which had a heating load of 2.9 MMBtu/hr for 82,000 sqft. At 1,243,017 sqft, the Aqueduct facility is estimated to require a 44 MMBtu/hr heating load.

b - Based on a related New York State facility GHG Inventory (NYSDEC, 2008), which required a 100,000 Btu/hr water heater for 82,000 sqft. At 1,243,017 sqft, the Aqueduct facility is estimated to require 1,500,000 Btu/hr capacity for heating water.

c - Site drawings show 3 pad mounted emergency generators (NYSOGS, 2009). These three generators are assumed to be rated at 1000 kW each and run on #2 fuel oil, similar to the generator used at a related New York State facility GHG Inventory (NYSDEC, 2008). To acquire the heat input in MMBtu, the conversion factor (1 kW = 3400 Btu) was used.

d - No information on stationary combustion equipment was provided by NYSOGS; therefore, all heating loads and equipment ratings were based on a related New York State facility GHG Inventory (NYSDEC, 2008).

e - The annual hours usage estimates for stationary combustion equipment were as follows: 9 months per year for heating boilers, 12 months per year for water heaters, and 3 days (72 hours) per year for emergency generators.

f - Emissions factors were derived from the WRI/WBCSD Greenhouse Gas Protocols (2005).

g - New York State Executive Order 111 requiring state agencies to achieve a minimum 10% improvement in energy efficiency performance over NYS Energy Code (State of New York Executive Chamber, 2007).

Sources:

NYSOGS. 2009. NYS Aqueduct VLT Renovation: Request for Information (No. 1). New York State Office of General Services. 2009.

New York State Department of Environmental Conservation (NYSDEC). 2008. Village of Colonie, NY. NY State Police Troop G Headquarters. Draft Environmental Impact Statement, Vol. 1. (Not Yet Filed)

WRI/WBCSD. 2005. GHG Protocol Initiative Calculation Tool: Revised Tool for Direct Emissions from Stationary Combustion.Version 3.0 (Available at: www.ghgprotocol.org)

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Air Quality Impact - Greenhouse Gases
Table 2 - Direct Emissions From Fugitive Sources

	Units	Walk-in Coolers	Walk-in Freezers	Nom. 80 Ton Evap Cooled HVAC units	Ton Evap Cooled HVAC units
Power Rating per Unit[a]	W	25900	18000	84000	192000
Number of Units[a]	unitless	14	4	3	14
Total Design Load[b]	kW	363	72	252	2688
Total Refrigerant Charge[c] (RC)	kg	26.3	19.1	63.0	672.0
Annual Leakage Rate[d] (LR)	%	25%	25%	10%	10%
Annual Refrigerant Leakage	kg	6.58	4.76	6.30	67.2
Refrigerant Used[d]	unitless	MO29 (R-422D)	MO79 (R-422A)	R-134A	R-134A
Global Warming Potential[e] (GWP)	kg CO_2E / kg	2230	2530	1300	1300
Annual Emissions (E)	CO_2E (tpy*)	15	12	8.2	87

Total Annual Emissions from All Sources	CO_2 E tpy	122
Building Scale	ft^2	1,243,017
Total Annual Emissions Intensity	CO_2 E tpy / ft^2	9.8E-05

Methods:

$$E = RC \times LR \times GWP \times CF$$

CF = 1 metric ton/1000 kg
*tpy = metric tons per year

Notes:

a - The list of units, number of units, and power ratings were shown in the Electrical Load Calculation table provided by NYSOGS (2009)

b - Total design load = (power rating per unit) × (number of units)

c - Refrigerant charge is estimated to be 0.25 kg of refrigerant per kW of design load. This represents an average of refrigerant charge rates for commercial chillers (ARAP, 1999).

d - Type of Refrigerant and Annual Leakage Rate represent equipment specific upper bound values from Chapter 7 of the IPCC Guidelines for National Greenhouse Gas Inventories (2006).

e - GWP for R-422D and R-422A refrigerants are from Bitzer (2006); GWP for refrigerant R-134A is from IPCC (2007).

Sources:

The Alliance for Responsible Atmospheric Policy (ARAP), 1999. A.D. Little Report 7. Chillers. Accessed 4/8/2009 at <www.arap.org/adlittle-1999/7.html>

Bitzer, 2006. Refrigerant Report. 14th Edition. A-501-14.

Electricians Toolbox. Accessed 4/7/09 at <http://www.elec-toolbox.com>

Intergovernmental Panel on Climate Change (IPCC), 2006. Guidelines for National Greenhous Gas Inventories Volume 3: Industrial Processes and Product Use, Chapter 7, Section 7.5.1 & Table 7.9. Accessed 4/8/09 at <http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol3.html>

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Air Quality Impact - Greenhouse Gases
Table 3 - Direct Emissions From Site Clearing

Emissions		
Existing Green Space[a]	74.4	acres
Green Space Cleared[a] (A)	6.43	acres
Green Space Mass Density (MD)[b]	821.5	kg/acre
Carbon Content (CC)[c]	45%	percent
Carbon to Carbon Dioxide Conversion Factor (CF_1)	3.664	grams CO_2 / grams C
Kilograms to Metric Tons CO_2 Conversion Factor (CF_2)	0.001	metric tons / kg
CO_2 Emissions From Site Clearing	8.71	metric tons CO2

Facility Improvements		
Green Space Restored[a]	6.43	acres
Net Loss of Green Space	0.00	acres
CO_2 Emissions Mitigated Through Restored Green Space[d]	8.71	metric tons CO2
Percent Improvement	100%	percent

Methods:

$$E = MD \times A \times CC \times CF_1 \times CF_2$$

Notes:

a - Existing green space, green space to be cleared, and green space to be restored were all provided by NYSOGS (2009). All green space is assumed to be landscaped (i.e., manicured lawn, ornamental shrubs, and small ornamental trees).

b - Grassland was utilized as the best comparison of biomass to a landscaped green space. Average total above ground biomass for ten North American grasslands throughout the year (Sim et al. 1978).

c - Average carbon content of croplands in the United States over a 15 year study (West, 1990-2005).

d - The green space cleared to construct the garage was mitigated by restored green space elsewhere onsite.

Sources:

NYSOGS. 2009. NYS Aqueduct VLT Renovation: Request for Information (No. 1). New York State Office of General Services. 2009.

Sims, P.L., J.S. Singh, and W.K. Lauenroth, (1978). The structure and function of ten western North American grasslands. I. Abiotic and vegetational characteristics. Journal of Ecology 66, 251-285. (Accessed Online at: http://daac.ornl.gov/NPP/html_docs/references.html#cper)

West, T.O, (1990-2005) County-level Estimates for Carbon Distribution in U.S. Croplands. Environmental Sciences Division, Oak Ridge National Laboratory. (Accessed Online at: http://cdiac.ornl.gov/carbonmanagement/cropcarbon/)

O'Hara, F, (1990) Carbon Dioxide and Climate. ORNL/CDIAC-39, Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, Oak Ridge, Tennessee. ORNL/CDIAC-39. Third Edition. (Accessed Online at: http://cdiac.ornl.gov/pns/convert.html)

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Air Quality Impact - Greenhouse Gases
Table 4 - Indirect Emissions From Electricity Usage

Electricity Consumption												
	Units	**Lighting Load**	**Food Service Load**	**Video Lottery Terminals**	**Elevators and Escalators**	**Fire Pump**	**HVAC Load**	**Computer Equipment for VLT**	**Office Equipment Receptacles**	**Site Lighting & Outdoor Plasma Screen**	**Parking Garage Lighting**	**Electrical Service Building**
Demand Load[a] (DL)	kVA	250	79	1463	215	75	2175	145	100	100	100	-
Power Factor[b] (PF)	unitless	1	1	1	1	1	1	1	1	1	1	-
Demand Power[a]	kW	432.5	136.67	2530.99	371.95	129.75	3762.75	250.85	173	173	173	-
Annual hours[c] (H)	hours	8760	8760	8760	8760	8760	8760	8760	8760	8760	8760	-
Greenhouse Gas Emissions												
Total Annual Power Consumption (PC)	kWh	3,788,700	1,197,229	22,171,472	3,258,282	1,136,610	32,961,690	2,197,446	1,515,480	1,515,480	1,515,480	45,600
On-Site Power Production[e] (PP)	percent	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Efficiency Performance Requirement[f] (EP)	percent	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	20.0%	10.0%
Net Annual Off-Site Power Consumption	kWh	3,409,830	1,077,506	19,954,325	2,932,454	1,022,949	29,665,521	1,977,701	1,363,932	1,363,932	1,212,384	41,040
Purchased Renewable Energy Credits[g] (REC)	percent	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Net Non-Renewable Annual Power Consumption	kWh	2,727,864	862,005	15,963,460	2,345,963	818,359	23,732,417	1,582,161	1,091,146	1,091,146	0,969,907	32,832
Emission Factor[h] (EF)	lb CO_2/kWh	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922	0.922
GHG Emissions Summary												
Annual Emissions (E)	CO_2 tpy*	1,141	360	6,675	981	342	9,923	662	456	456	406	14
Building Scale[i]	ft^2	1,843,017	1,843,017	1,843,017	1,843,017	1,843,017	1,843,017	1,843,017	1,843,017	1,843,017	1,843,017	6,000
Annual Emissions Intensity	CO_2 tpy per sq. ft.	6.2E-04	2.0E-04	3.6E-03	5.3E-04	1.9E-04	5.4E-03	3.6E-04	2.5E-04	2.5E-04	2.2E-04	2.3E-03

GHG Emissions and Facility Improvements Summary		
	Units	Value
Annual Facility-Wide Emissions	CO_2 tpy	21,416
Annual Emissions Intensity	CO_2 tpy per sq. ft.	0.017
Annual Emissions given Total Annual Power Consumption as non-renewable purchased energy.[j]	CO_2 tpy	29,815
Annual Emissions Avoided through On-Site Production, Efficiency Performance Requirement, and Renewable Energy Purchases	CO_2 tpy	8,399
Percent Improvement through Efficiency Performance and Renewable Energy Purchases	percent	28%

Methods:

$$PC = DL \times PF \times 1.73 \times H$$

$$E = PC \times (1 - PP) \times (1 - EP) \times (1 - REC) \times EF \times CF$$

CF = Conversion factor (1 metric ton/2205 lb)

Notes:

a - The demand load was provided by NYSOGS (2009), except in the case of the "Parking Garage Lighting" which was assumed to be the same as "Site Lighting & Outdoor Plasma Screen" since no other information was provided. The Demand Power is derived from the equation: [Kilowatts = Design Load x Power Factor x 1.73] based on 3-phase AC power (Electricians Toolbox, 2008).

b - Power factor is the ratio between apparent power (demand load; kVA) and real power (demand power; kW; capacity to perform work). Power factors vary between 0 and 1 and an upper bound estimate of 1 is assumed in this analysis.

c - The facility is scheduled to be open to patrons from 10 AM to 2 AM year round (16 hours per day); however, it is predicted that some personnel will be onsite at all times and that facility operations will not be confined to solely when the facility is open. Therefore, demand is conservatively estimated to remain constant at all times. 24 hours per day X 365 days per year.

d - The value for the Electrical Service Building was estimated using CBECS data for warehouse and storage facilities from EIA (1995).

e- The RFI submitted by NYSOGS (2009) did not indicate any onsite renewable electricity being generated by the facility.

f - New York State Executive Order 111 requiring state agencies to achieve a minimum 10% improvement in energy efficiency performance over NYS Energy Code (State of New York Executive Chamber, 2007).

g - New York State Executive Order 111 requiring state agencies to purchase 20% of electricity from renewable sources by 2010 (State of New York Executive Chamber, 2007).

h - Based on North American Electricity Reliability Council (NERC) Region and eGrid Subregion Emission Factors (2000) for New York City.

i - Building scale incorporates the square footage of both the clubhouse and the parking garage. All other emissions categories include only the clubhouse because the garage is assumed to only use electricity.

j - Assumes all power needs are fulfilled by the purchase of non-renewable energy. [PC X EF].

*tpy = metric tons per year (metric ton = 2205 lb)

Sources:

Energy Information Administration. 1995. Commercial Buildings Energy Consumption Survey. (Available at: http://www.eia.doe.gov/emeu/consumptionbriefs/cbecs/pbawebsite/office/office_howuseelec.htm).

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State of New York Executive Chamber. 2007. Executive Order No. 111: Directing State Agencies to be More Energy Efficient and Environmentally Aware. (Available at: http://www.nyserda.org/Programs/exorder111.asp).

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Air Quality Impact - Greenhouse Gases
Table 5 - Indirect Emissions From Employee Commuting

	Units	Value
Commuting Distance and Frequency		
Number of Employees[a] (N)	people	900
Average Round Trip Distance[b] (RT)	miles/trip	24.0
Trips per Year[c] (T)	trips/year	250
Total Annual Distance for all employees	miles/year	5400000
Emission Factors by Commuting Method		
Percent Commuting by Car[d] (P)	percent	50%
Annual distance by car (D)	miles/year	2700000
Emission factor[e] (EF)	kg CO_2/mile	0.392
Percent Commuting by Subway[d] (P)	percent	35%
Annual distance by subway (D)	miles/year	1890000
Emission factor[e] (EF)	kg CO_2/mile	0.1604
Percent Commuting by Bus[d] (P)	percent	15%
Annual distance by bus (D)	miles/year	810000
Emission factor[e] (EF)	kg CO_2/mile	0.2997
Emissions		
Annual emissions by car commuters	CO_2 (tpy)*	1058
Annual emissions by subway commuters	CO_2 (tpy)	303
Annual emissions by bus commuters	CO_2 (tpy)	243
Annual emissions (E)	CO_2E (tpy)	1604

Total Annual CO_2E Emissions	**CO_2E (tpy)**	**1604**

Facility Improvements[f]		
Potential Total Annual Emissions	**CO_2 E tpy**	**2,117**
Actual Total Annual Emissions	**CO_2 E tpy**	**1,604**
Annual Avoided Emissions through Public Transit Use	**CO_2 E tpy**	**512**
Percent Improvement Through Public Transit Use	**percent**	**24%**

Methods:

$$E = \sum_{type} (N \times RT \times T \times P \times EF \times CF)$$

CF = 1 metric ton/1000 kg

Notes:

a - Number of employees (N) provided by NYSOGS (2009).

b - Round trip distance (RT) assumes a 12 mile one-way commute, which was estimated to be 75% of the national average (16 miles) because of New York City's population density (ABC News, 2005).

c - Trips per Year (T) assumes all employees work a five-day work week with two weeks of vacation.

d - Percentage commuting by each method were derived from US Census Bureau Data for the New York, NY Primary Metropolitan Statistical Area (US Census Bureau, 2004). Although the estimated percentage of households in New York City commuting by car is only 25%, this value was doubled. The Census Bureau estimated 32% of households in New York City commute by rail (rounded to 35%) and 14% commute by bus (rounded to 15%).

e - Commuting emissions factors based on medium gas auto, US transit rail, and urban transit (diesel) bus. (WRI/WBCSD, 2003)

g - An estimate of mitigated GHG emissions was performed based on the assumption that, given a more remote location, all employees would be forced to drive to work each day. The percent mitigation and annual emissions avoided through public transit use are calculated based on this assumption.

* tpy = metric tons per year (metric ton = 1000 kg)

Sources:

ABC News, 2004. "Poll: Traffic in the United States". Article by Gary Langer. ABC News. February 13, 2005. Accessed 4/9/09 at <http://abcnews.go.com/Technology/Traffic/Story?id=485098&page=1>

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WRI/WBCSD, (2003). GHG Protocol Initiative Calculation Tool: Mobile Combustion CO2 Emissions Calculation Tool.Version 1.2 (Available at: www.ghgprotocol.org).

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Air Quality Impact - Greenhouse Gases
Table 6 - Indirect Emissions From Patron Travel

	Units	Value
Travel Distance and Frequency		
Number of Patrons[a] (N)	people/year	8,330,000
Patrons from within New York City[b] (V_1)	percent	50%
Average Round Trip Distance from NYC[c] (RT_1)	miles/trip	24
Patrons from within New York Metropolitan Area[b] (V_2)	percent	50%
Average Round Trip Distance from NY Metro[c] (RT_2)	miles/trip	70
Average Round Trip Distance for each Patron[d]	miles/year	47
Passengers per car or taxi (CP)	passengers/car	2
Emission Factors by Travel Method		
Percent Commuting by car/taxi[e] (P)	percent	75%
Annual distance by car/taxi (D)	miles/year	146,816,250
Emission factor[f] (EF)	kg CO_2/mile	0.392
Percent traveling by subway[e] (P)	percent	9%
Annual distance by subway (D)	miles/year	35,235,900
Emission factor[f] (EF)	kg CO_2/mile	0.1604
Percent traveling by local bus[e] (P)	percent	11%
Annual distance by bus (D)	miles/year	43,066,100
Emission factor[f] (EF)	kg CO_2/mile	0.2297
Percent traveling by intercity bus[e] (P)	percent	3%
Annual distance by intercity bus (D)	miles/year	11,745,300
Emission factor[f] (EF)	kg CO_2/mile	0
Percent traveling by walk/bike[e] (P)	percent	2%
Annual distance by walk/bike[g] (D)	miles/year	7,830,200
Emission factor[g] (EF)	kg CO_2/mile	0.0
Emissions		
Annual emissions by car/taxi patrons	CO_2 (tpy)*	57,552
Annual emissions by subway patrons	CO_2 (tpy)	5,652
Annual emissions by local bus patrons	CO_2 (tpy)	9,892
Annual emissions by intercity bus patrons	CO_2 (tpy)	917
Annual emissions by walk/bike patrons	CO_2 (tpy)	-
Annual emissions (E)	CO_2E (tpy)	74,013

Total Annual CO_2E Emissions	**CO_2E (tpy)**	**74,013**

Facility Improvements[h]		
Potential Total Annual Emissions Assuming No Public Transit	CO_2 E tpy	95,920
Actual Total Annual Emissions	CO_2 E tpy	74,013
Annual Avoided Emissions through Public Transit Use	CO_2 E tpy	21,907
Percent Improvement Through Public Transit Use	percent	23%

Methods:

$$E = \left(\left(N \times V_1 \times RT_1 \right) + \left(N \times V_2 \times RT_2 \right) \right) \times \left(\sum_{type} \left(P \times EF \times CF \right)_{non\ car} + \frac{\left(P \times EF \times CF \right)_{car}}{CP} \right)$$

CF = 1 metric ton/1000 kg

Notes:

a - Number of patrons (N) provided by NYSOGS (2009).

b - Since the facility is located in New York City it is assumed that a large portion of patrons will come from within the city. The US Census Bureau (2004) provides that New York City has approximately 3.4 million households and the New York Metropolitan Area has 7.4 million households. Therefore, it was estimated that 50% of patrons would come from within New York City (V_1) and 50% would come from within the New York Metropolitan Area (V_2).

c - Round trip distance (RT_1, RT_2) assumes a 12 mile one-way distance for New York City residents and a 45 mile one-way distance for New York Metropolitan area residents (half the distance of the average radius (70 miles) of the metropolitan area (US Census Bureau, 2004)). The facility is anticipated to draw patrons from a relatively large metropolitan area due to a lack of other video gaming venues in the region.

d - Average annual distance includes the following assumptions: 50% of patrons travel 24 miles each way and 50% of patrons travel 70 miles each way for an average distance of 47 miles

e - Percentage commuting by each method were derived from the Draft Traffic and Parking Attachment (NYSOGS, 2009).

f - Commuting emissions factors were derived from the GHG Protocols: Mobile Combustion CO_2 Emissions Calculation Tool, based on medium gas auto, US transit rail, bus (diesel) - urban, and bus (diesel) - long distance. (WRI/WBCSD, 2003)

g - Although the annual distance for walk/bike patrons is unreasonably high, it is arbitrary because the assumed emissions factor for walk/bike patrons is 0.0 kg CO_2/mile.

h - An estimate of avoided GHG emissions was performed based on the assumption that, given a more remote location, all patrons that currently use a mode of transit other than driving would be forced to drive during each visit. Therefore, avoided GHG emissions were calculated by assuming all of the mileage from patrons that currently use subway, local bus, intercity bus, and walk/bike, is by single passenger cars instead. These emissions are then added to the emissions from patrons currently traveling by car/taxi to estimate potential total annual emissions.

* tpy = metric tons per year (metric ton = 1000 kg)

Sources:

NYSOGS. 2009. NYS Aqueduct VLT Renovation: Request for Information (No. 1). New York State Office of General Services. 2009.

US Census Bureau. 2004. "Table B08201. Household Size by Vehicles Available - Universe: Households". 2004 American Community Survey. United States Census Bureau. Accessed 4/9/09 at http://factfinder.census.gov

WRI/WBCSD, (2003). GHG Protocol Initiative Calculation Tool: Mobile Combustion CO2 Emissions Calculation Tool.Version 1.2 (Available at: www.ghgprotocol.org).

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Air Quality Impact - Greenhouse Gases
Table 7 - Indirect Emissions From Solid Waste

	Units	Solid Waste
Historic Waste Production[a] (HW)	U.S. Tons / year	4104
Estimated Future Percent Increase in Waste Production[b] (PI)	%	300%
Future Waste Production (FW)	U.S. Tons	16416
Emission Factor[c] (EF)	$mtCO_2E^{**}$ / U.S Ton	0.42
Annual Emissions (E)	CO_2E (tpy*)	6895

Total Annual Emissions from All Sources	CO_2 E tpy	6,895
Building Scale	ft^2	1,243,017
Total Annual Emissions Intensity	CO_2 E tpy / ft^2	5.5E-03

Methods:

FW = HW x (1 + PI)
E = FW x EF
*tpy = metric tons per year
**$mtCO_2E$ = metric tons CO_2E

Notes:

a - Tons/month of solid waste provided by NYSOGS (2009)

b - The future increase in waste production is based on an increase of operating days over the base case from a few days a week over 6 months of the year to seven days a week over 12 months of the year.

c - Emission factor for landfilling municipal solid waste from Exhibit B-1 of USEPA (2006)

Sources:

NYSOGS. 2009. NYS Aqueduct VLT Renovation: Request for Information (No. 1). New York State Office of General Services. 2009.
USEPA. 2006. Solid Waste Management and Greenhouse Gases: a Lifecycle Assessment of Emissions and Sinks. 3rd Edition.

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110-00 Rockaway Blvd., Jamaica, NY 11420

Air Quality Impact - Greenhouse Gases
Table 8 - Emission and Improvement Summary[a]

	Estimated Emissions Without Facility Improvements (tpy)*	Estimated Emissions With Facility Improvements (tpy)*	Estimated Emissions Avoided[a] (tpy)*	Percentage Emissions Avoided[b]	Estimated Emissions Relative to Total Annual Carbon Footprint
Annual Emissions					
Scope 1: Direct Emissions					
Stationary Combustion	16,759	15,083	1,676	10%	13%
Fugitive (Refrigerant leakage)	122	122	0	0%	0.1%
Scope 1 Total	*16,881*	*15,205*	*1,676*	*10%*	*13%*
Scope 2: Indirect Emissions from Electricity Usage	*29,815*	*21,416*	*8,399*	*28%*	*18%*
Scope 3: Other Indirect Emissions					
Employee Commuting	2,117	1,604	512	24%	1%
Patron Travel	95,920	74,013	21,907	23%	62%
Solid Waste	6,895	6,895	0	0%	6%
Scope 3 Total	*104,931*	*82,512*	*22,419*	*21%*	*69%*
Total Annual Carbon Footprint[c]	**151,628**	**119,134**	**32,494**	**21%**	
Single Direct Emission					
Site Clearing[d]	8.71	0	8.71	100%	

Notes:
*tpy = metric tons per year (1 metric ton = 2205 lb)
a - See Tables 1-7 for detailed calculations. 5179.726999
b - Percentage Emissions Avoided = Estimated Emissions / (Estimated Emissions + Estimated Emissions Avoided)
c - Total carbon footprint is the sum of all emissions catagories (excluding site clearing) calculated annually. Emissions avoided are added to total emissions in order to find the percentage of the carbon footprint reduced.
d - Emissions from site clearing are a one time occurrence during construction of the proposed facility.

SHPO Documentation

OFFICE OF PARKS · RECREATION · HISTORIC PRESERVATION
NEW YORK STATE

New York State Office of Parks, Recreation and Historic Preservation

Historic Preservation Field Services Bureau • Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643
www.nysparks.com

David A. Paterson
Governor

Carol Ash
Commissioner

October 18, 2010

Carolyn D. Dunderdale, LA
Senior Landscape Architect
NYS OGS Design and Construction
Environmental Permit Unit
Empire State Plaza, Corning Tower
34th Floor
Albany, NY 12242

Re: OGS, Lottery
Proposed Renovations and VLT project
Aqueduct Raceway
Borough of Queens, Queens County, NY
10PR04160

Dear Ms. Dunderdale,

Thank your for requesting the comments of the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) with regard to the potential for this project to affect significant historical/cultural resources. OPRHP has reviewed the proposed Letter of Resolution (LOR) recently proposed by your office. This LOR has been deemed necessary due to the unique circumstances of this property where the presence and thickness of existing fill material overlying original soils at the project location make standard archaeological testing in advance of construction unfeasible. The procedures outlined in the LOR will allow those original soils to be examined archeologically through monitoring during the construction process and lays out a procedure for developing and implanting evaluation and mitigation measures if any intact archaeological deposits are identified. Therefore, use implementation of the LOR should allow the involved state agencies to meet their obligations under Section 14.09 of the State Historic Preservation Act and it is the opinion of the OPRHP that completion of all steps outlined in the LOR will result in the project having No Adverse Impact on historic resources.

Please contact me at extension 3291, or by e-mail at douglas.mackey@oprhp.state.ny.us, if you have any questions regarding these comments.

Sincerely

Douglas P. Mackey
Historic Preservation Program Analyst
Archaeology

LETTER OF RESOLUTION
COMPLIANCE WITH SECTION 14.09 OF THE STATE HISTORIC PRESERVATION ACT ARCHAEOLOGICAL SITE MONITORING AT AQUEDUCT RACETRACK

between

New York State Division of the Lottery
New York State Office of General Services
New York State Office of Parks, Recreation and Historic Preservation and
Genting New York, LLC

WHEREAS, **Genting New York LLC (GeNY)** has proposed to develop a Video Lottery Gaming Facility at Aqueduct Racetrack **(Project)**, including renovations within and attached to the current Clubhouse and Grandstand Buildings, the construction of a eight-story parking garage, an elevated walkway from the Grandstand to the train station, stormwater management system, utility connections and upgrades, landscape improvements and underground valet parking system and the **New York State Division of the Lottery (Lottery)** has agreed to that proposal; and

WHEREAS, GeNY will need construction permits to develop the Project and Lottery has retained the services of the **New York State Office of General Services (OGS)** as a construction permitting authority, and OGS has consulted with the New York State Office of Parks Recreation and Historic Preservation (OPRHP) in accordance with Section 14.09 of the State Historic Preservation Act of 1980, as amended; and

WHEREAS, a review of the Area of Potential Effect (APE) (Appendix 1) has identified the Project to be located in and adjacent to an identified Archaeologically Sensitive Area; and

WHEREAS, based on previous coordination with OPRHP, it was identified that the depth of fill over possible original soils will not allow for the standard testing approach as outlined in the New York Archeological Council "Standards for Cultural Resource Investigations and the Curation of Archeological Collections in New York State"; and

WHEREAS, although there has been extensive previous fill, development, and paving affecting the surface and subsurface in the areas to be impacted by the Project, it is not currently known whether excavation of soils to depths greater than the thickness of the existing fill layers will occur in certain areas of the Project, thereby resulting in the potential to affect any original intact soil horizons; and

WHEREAS, to evaluate such potential, GeNY has retained a contractor to perform soil borings to determine prior disturbance of the site (Soil Boring Investigation), with plans to complete the borings prior to any earth disturbing activity; and

WHEREAS, to the best of our knowledge and belief, no human remains, associated or unassociated funerary objects or sacred objects, or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001) (Archeological Sites), are expected to be encountered in the archaeological work, provided however that if such Archeological Sites are encountered, the procedures outlined in Appendix 2 shall be implemented as guidance; and

NOW, THEREFORE, the Lottery, OGS, the OPRHP, and GeNY agree that GeNY will develop and submit to OPRHP an Archeological Monitoring Plan for approval prior to the issuance by OGS to GeNY of any permits which would provide for earth disturbing activities, if the soil borings confirm that original soils may be intact beneath fill at depths which will be impacted by the proposed construction.

GENY further agrees that any archaeological deposits found to be intact will be addressed appropriately in consultation with OPRHP, including identification of any cultural resources eligible for inclusion on the National Register of Historic Places and development of appropriate mitigation measures. If archaeological data recovery is necessary, a plan will be developed that is consistent with the Advisory Council on Historic Preservations Conditions: Recommended Approach for Consultation on Recovery of Significant Information from Archaeological Sites (Appendix 2).

GeNY further agrees to comply with the following terms and conditions in a timely manner and with adequate resources to fulfill the Lottery's responsibility in accordance with the State Historic Preservation Act of 1980.

TERMS AND CONDITIONS:

- Modification, amendment, or termination of this agreement as necessary shall only be accomplished by written agreement of the signatories in the same manner as the original agreement.

- Disputes regarding the completion of the terms of this agreement shall be resolved by the signatories.

- Upon the mutual written consent of all signatories, the Archaeological Monitoring Plan shall be adopted and implemented, without necessitating amendments to this agreement.

SIGNATURES

GeNY Official: _____

JH

Date: 10/20/10.

Lottery Agency Official: William J. Murray/dbs

Date: 10/19/10

OGS Agency Official: _____

Date: 10/18/10

State Historic Preservation Officer (OPRHP): _____

Date: 10/15/10

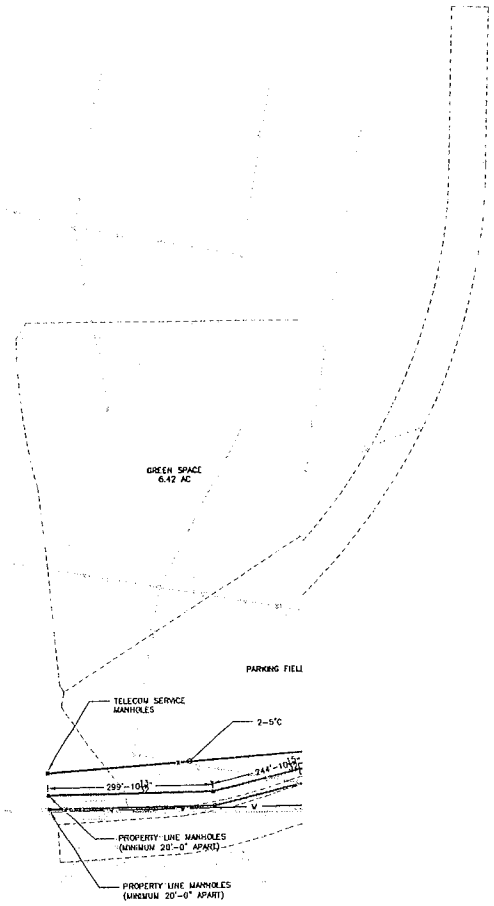
Attachments:

Appendix 1 – Project plot plan designating archeologically sensitive area, and Area of Potential Effect.

Appendix 2 - Advisory Council on Historic Preservation Conditions: Recommended Approach for Consultation on Recovery of Significant Information from Archaeological Sites. To be implemented as guidance if intact Archaeological Sites are identified.

~~Appendix 3 – Archeological Monitoring Plan (Name of Plan, Author of Plan, Date of Plan).~~

Appendix 1
Project Plan



REVISIONS:

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17th FLOOR
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FOOD & BEVERAGE:
JLM ASSOCIATES
833 MILL ROAD
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PLEASANTVILLE, NJ 08232

Resorts World NEW YORK

Resorts World Aqueduct
110-00 Rockaway Blvd.
Ozone Park (Queens), NY

AQUEDUCT

KEY PLAN

JCJ.
JCJ Architects PC
Empire State Building
350 Fifth Avenue
Suite 7101
New York, NY 10118

P.I.C.
P.M.
D.T.L.

ISSUE
JOB H10013.00
DRAWN CP
SCALE 1" = 100'-0"

SITE PLAN
(SEQRA)

C-1.00

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Appendix 2

Advisory Council on Historic Preservation Conditions: Recommended Approach for Consultation on Recovery of Significant Information from Archaeological Sites. To be implemented as guidance if intact Archaeological Sites are identified

1. The archaeological site(s) should be significant and of value chiefly for the information on prehistory or history they are likely to yield through archaeological, historical, and scientific methods of information recovery, including archaeological excavation.

2. The archaeological site should not contain or be likely to contain human remains, associated or unassociated funerary objects, sacred objects, or items of cultural patrimony as those terms are defined by the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001).

3. The archaeological site should not have long-term preservation value, such as traditional cultural and religious importance to an Indian tribe or a Native Hawaiian organization.

4. The archaeological site should not possess special significance to another ethnic group or community that historically ascribes cultural or symbolic value to the site and would object to the site's excavation and removal of its contents.

5. The archaeological site should not be valuable for potential permanent in-situ display or public interpretation, although temporary public display and interpretation during the course of any excavations may be highly appropriate.

6. The Federal Agency Official should have prepared a data recovery plan with a research design in consultation with the SHPO and other stakeholders that is consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties, the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation and the Advisory Council on Historic Preservation's Treatment of Archaeological Properties: A Handbook. The Plan should specify:

    (a) The results of previous research relevant to the project;
    (b) research problems or questions to be addressed with an explanation of their relevance and importance;
    (c) the field and laboratory analysis methods to be used with a justification of their cost-effectiveness and how they apply to this particular property and these research needs;
    (d) the methods to be used in artifact, data and other records management;
    (e) explicit provisions for disseminating the research findings to professional peers in a timely manner;
    (f) arrangements for presenting what has been found and learned to the public, focusing particularly on the community or communities that may have

interests in the results;

(g) the curation of recovered materials and records resulting from the data recovery in accordance with 36 CFR part 79 (except in the case of unexpected discoveries that may need to be considered for repatriation pursuant to NAGPRA); and

(h) procedures for evaluating and treating discoveries of unexpected remains or newly identified historic properties during the course of the project, including necessary consultation with other parties.

7. The Federal Agency Official should ensure that the data recovery plan is developed and will be implemented by or under the direct supervision of a person, or persons, meeting at a minimum the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-44739).

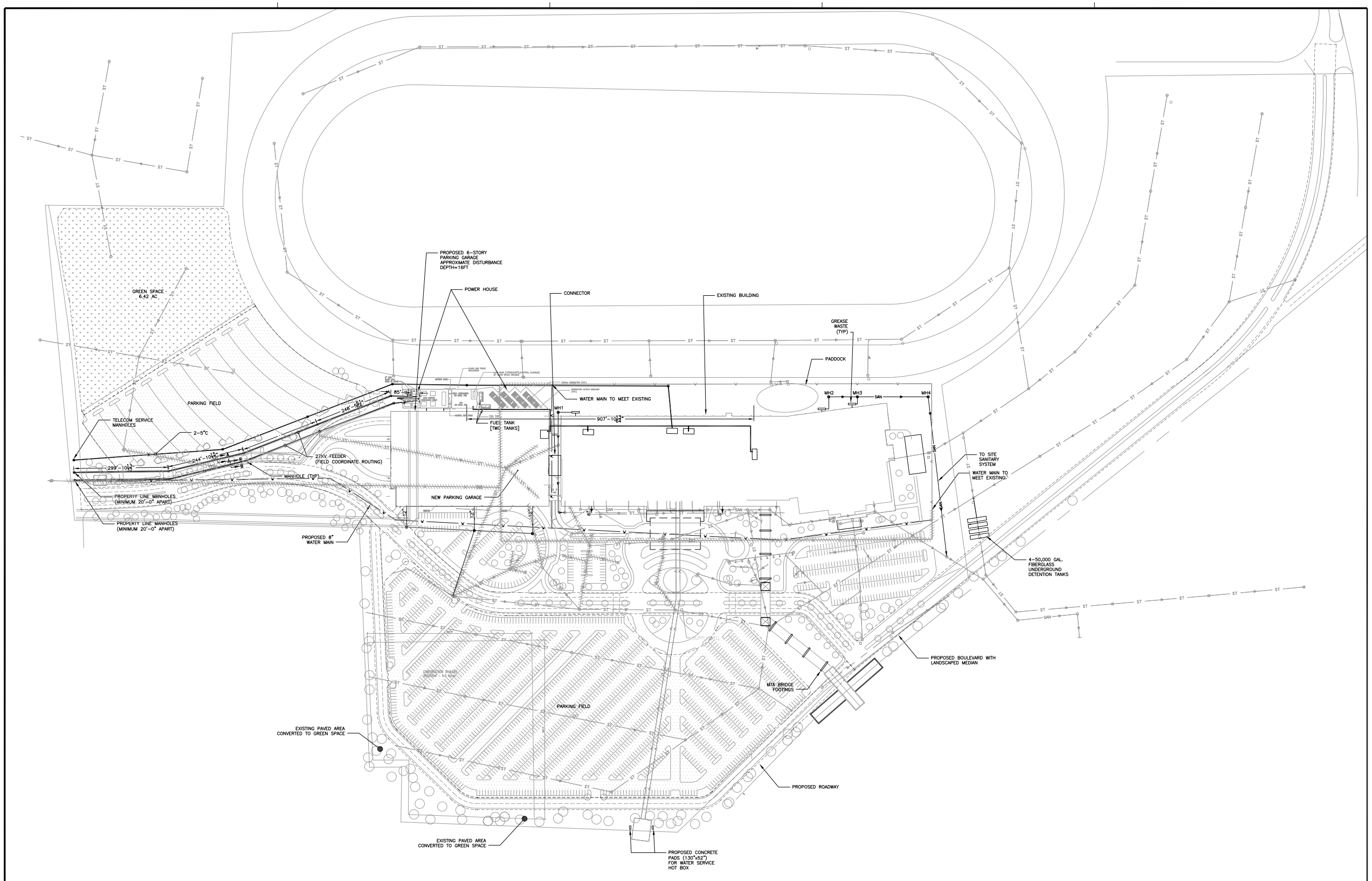
8. The Federal Agency Official should ensure that adequate time and money to carry out all aspects of the plan are provided, and should ensure that all parties consulted in the development of the plan are kept informed of the status of its implementation.

9. The Federal Agency Official should ensure that a final archaeological report resulting from the data recovery will be provided to the SHPO. The Federal Agency Official should ensure that the final report is responsive to professional standards, and to the Department of the Interior's Format Standards for Final Reports of Data Recovery Programs (41 FR 5377-79).

10. Large, unusual, or complex projects should provide for special oversight, including professional peer review.

11. The Federal Agency Official should determine that there are no unresolved issues concerning the recovery of significant information with any Indian tribe or Native Hawaiian organization that may attach religious and cultural significance to the affected property.

12. Federal Agency Officials should incorporate the terms and conditions of this recommended approach into a Memorandum of Agreement or Programmatic Agreement, file a copy with the Council per § 800.6(b)(iv), and implement the agreed plan. The agency should retain a copy of the agreement and supporting documentation in the project files.



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REVISIONS:

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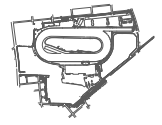
Resorts World NEW YORK

Resorts World Aqueduct

110-00 Rockaway Blvd.
Ozone Park (Queens), NY

AQUEDUCT



KEY PLAN

JCJARCHITECTURE
JCJ Architecture, PC
Empire State Building
350 Fifth Avenue
Suite 1029
New York, NY 10118

P.I.C.
P.M.
D.T.L.

ISSUE
JOB H10013.00
DRAWN CP
SCALE 1" = 100'-0"

SITE PLAN (SEQRA)

C-1.00

Infrastructure Review

RESORT WORLD
AT
AQUEDUCT RACETRACK

UTILITIES SERVICES ASSESSMENT
FOR SEQRA SUBMISSION

October 8, 2010

Edwards & Zuck

Utility Services Assessment

The purpose of this utility assessment is to review the projected utility demand loads of the building, resulting from the proposed Resort World renovations, for evaluation of municipal utility infrastructure.

Water Service

The Grandstand/Clubhouse building is served from a 16” diameter municipal street main under Centerville street through a single 10” diameter service extending underground through the parking lot to the boiler room.

Based on the summation of water loads and plumbing fixture counts the peak water demand load is anticipated to be 1100 gpm, with the following breakdown;

Plumbing Fixtures Count – 600 gpm (based on 5000 fixture units (derived from table E102 of the NYS Plumbing Code “Table for Estimating Demand”)

Food & Beverage – 250 gpm (provided by Food Service Consultant)

HVAC Evaporative Condensing – 250 gpm (based on 25 RTUs at 10 gpm/unit, provided by RTU mfr.)

The plumbing fixture load was calculated based on plan toilet room counts and the water flow-rate demand for this component determined based upon tables included within the NYS code.

Based on an 1100 gpm projected demand load, the 10” diameter water service is adequate to support the existing racing and proposed gaming operations (8” water meter has a range up to 1600 gpm).

Gas Service

The building is fed by a 6”diameter high pressure combination interruptible and firm gas service.

National Grid has reported the service is sized for a maximum of 67,000 cfh, although the bulk of the load (steam boilers) are fed by a “temperature controlled interruptible” service.

The existing gas service, was dictated by the large steam boilers with capacities of 1-600 and 2-400 BHP dual fuel fired boilers. The boilers alone represent a gas demand load of approximately 56,000 cfh.

Based on the summation of the renovations new gas loads, the peak gas demand load is anticipated to be 60,000 cfh, within the capacity of the existing gas service with the following breakdown;

16,000 cfh 1-600BHP existing steam boiler (existing 2-400BHP will be for standby)

20,000 cfh sum total of new rooftop a/c units accounting for system heating load diversity

10,000 cfh new domestic hot water heating plant

7000 cfh new kitchen make-up air heating load

7000 cfh new food service cooking load

60,000 cfh Total Firm Gas Demand Load

Edwards & Zuck has issued a load letter to National Grid and is awaiting National Grid’s determination on adequacy of existing service size and infrastructure capacity to support the requested “Firm” gas service (refer to attached gas load letter document).

Fire Service

The Grandstand/Clubhouse is served by two 8”diameter fire service mains extending underground from Centerville street and Rockaway Boulevard through the parking lot to the fire pump room on the ground floor adjacent to the boiler room.

The fire protection system will require 500 gpm for the first standpipe riser and 250 gpm for each additional riser up to 1000 gpm maximum for the fully sprinkled building.

The existing fire pump is rated for 1500 gpm and has been flow tested in the past and confirmed to generate 1500 gpm with a net head pressure

increase of 120 psig and 2250 gpm with a net head pressure increase of 106 psig. Fire service suction mains pressures at the flows noted above are 54 psig and 53 psig respectively, which complies with NFPA testing procedures for flow testing at 150% of rated capacity (see previous test results attached). We have requested a more recent test be conducted to confirm fire pump performance.

Based on previous test results the existing fire pump and 8" fire services are adequate to serve the fire protection systems for both the building.

Electrical

The proposed Resort World renovations will impose electrical demand loads, which far exceed the capacity of the existing electrical service.

The existing 4kv site service has a capacity limit of 3.9 MW. The demand load of the renovated facility is projected to be approximately 10 MW.

Edwards & Zuck has submitted an electric load letter and has received a service ruling and a will serve letter from Con Edison (see attached Con Edison service ruling and EZ electrical calculation spreadsheet). Con Edison has confirmed they will provide a new 27kv service adequate to support the proposed Resort World renovations.

HVAC

The gaming areas including food service areas, bars and back-of-house areas, will generally be served by evaporative-cooled rooftop a/c units with gas-fired heating coils and DX cooling coils, zoned for the area served. The evaporative-cooled RTUs will exceed present NYS energy code air-cooled RTUs by 10%, to comply with EO111 energy efficiency requirements for the project. HVAC load calculations have been attached for review.

The a/c units will be specified with full-size return fans for smoke purge as required by NYC code for public assembly occupancies. All smoke purge systems and associated fire-smoke dampers will be served by the emergency power system and controlled by the fire alarm system.

The gaming areas will be served by multiple custom variable volume roof-top a/c units with enthalpy economizers, evaporative condensers, modulating gas-fired furnaces and variable frequency drive supply and return air fans. The a/c units supply air discharge ducts will be connected to a common supply air manifold trunk duct to allow for greater system

turn-down and for redundancy. The a/c units will be isolated from the common supply and return air manifolds by fire-smoke dampers.

All new HVAC equipment will be controlled by an Ethernet based DDC type control system operating with BacNet.

All critical technology spaces including security and surveillance rooms, UPS equipment rooms, VLT monitor rooms, tele-com rooms, etc. will be served by dedicated redundant chilled water glycol-cooled computer room type a/c units. Roof-mounted redundant air-cooled chillers with duplex pump sets and glycol piping loop will serve the computer room a/c units.

Technology spaces such as the; main telecommunications room, security room and surveillance room requiring a chemical suppression system such as FM 200 or Energen will be provided with an associated purge exhaust systems.

Commercial cooking kitchens associated with the food service areas will be served by gas-fired make-air ventilation systems and grease hood exhaust systems.

Miscellaneous exhaust ventilation systems will be provided for toilet rooms, storage areas, electrical rooms with transformers, IDF data concentrator rooms, etc.

An atrium smoke control system will be provided for the multi-story lobby and will include smoke exhaust fans, duct work and fire-smoke dampers all served by the emergency power system.

Perimeter areas requiring localized heating will be provide with steam or heating hot water. Steam will be derived from the existing steam plant. A steam to hot water convertor/heat exchanger will be installed with hot water pumps and piping to provide heating hot water to space heating hot water loads. All entry vestibules and other perimeter areas requiring dedicated heating will be provide with either hot water, steam or gas-fired cabinet heaters.

Building Management System

An Ehternet based DDC system with full PC head-end operating on BacNet will be provided to monitor all HVAC systems and other critical ancillary electrical and plumbing systems.

PLUMBING FIXTURE COUNT

FIXTURES		WC	LAV	UR	MS	SH	FD			
FLOOR	ELEVATION									
GROUND	100'-0"	40	33	18	2	3	14			
FIRST	114'-0"	147	78	36	2	0	19			
2ND	135'-0"	133	74	42	2	0	17			
3RD	156'-0"	67	45	43	2	0	12			
ROOF	177'-0"	0	0	0	0	0	0			
TOTAL FIXTURES		387	230	139	8	3	62	0	0	TOTAL F.U.
DOMESTIC FIXTURE UNITS		774	2300	695	24	12	0			3805
SANITARY FIXTURE UNITS		2322	230	278	16	6	124			2976

Fixture Units for Domestic Water Piping

Fixture	Cold Water	Hot Water	Combined
Lavatory:	1.5	1.5	2
Water Closet:	10	-	10
Urinal:	5	-	5
Shower:	3	3	4
Mop Sink:	2.25	2.25	3
Hose Bibb	2	-	2
Wall Hydrant	2	-	2
Dishwasher	-	1.4	1.4
Pantry Sink	1	1	1.4

Fixture Units for Sanitary Piping

Fixture		
Lavatory:	1	
Water Closet:	6	
Urinal:	2	
Shower:	2	
Mop Sink:	2	
Floor Drain:	2	
Dishwasher	2	
Pantry Sink	2	

GROUND FLOOR
QUADRAPLEX CONSTANT PRESSURE SYS

SERVICES
GAS SERVICE (1)
FIRE WATER SERVICE (2)
CW SERVICE (1)
SANITARY SEWERS (2 NEW)
GREASE WASTE SEWER (1)

TABLE E102—continued
TABLE FOR ESTIMATING DEMAND

SUPPLY SYSTEMS PREDOMINANTLY FOR FLUSH TANKS			SUPPLY SYSTEMS PREDOMINANTLY FOR FLUSH VALVES		
Load	Demand		Load	Demand	
(Water supply fixture units)	(Gallons per minute)	(Cubic feet per minute)	(Water supply fixture units)	(Gallons per minute)	(Cubic feet per minute)
1,000	208.0	27.80544	1,000	208.0	27.80544
1,250	239.0	31.94952	1,250	239.0	31.94952
1,500	269.0	35.95992	1,500	269.0	35.95992
1,750	297.0	39.70296	1,750	297.0	39.70296
2,000	325.0	43.446	2,000	325.0	43.446
2,500	380.0	50.7984	2,500	380.0	50.7984
3,000	433.0	57.88344	3,000	433.0	57.88344
4,000	535.0	70.182	4,000	525.0	70.182
5,000	593.0	79.27224	5,000	593.0	79.27224

For SI: 1 gallon per minute = 3.785 L/m, 1 cubic foot per minute = 0.4719 L/s.

TABLE E103A
LOSS OF PRESSURE THROUGH TAPS AND TEES IN POUNDS PER SQUARE INCH (psi)

GALLONS PER MINUTE	SIZE OF TAP OR TEE (inches)						
	$^5/_8$	$^3/_4$	1	$1^1/_4$	$1^1/_2$	2	3
10	1.35	0.64	0.18	0.08	—	—	—
20	5.38	2.54	0.77	0.31	0.14	—	—
30	12.10	5.72	1.62	0.69	0.33	0.10	—
40	—	10.20	3.07	1.23	0.58	0.18	—
50	—	15.90	4.49	1.92	0.91	0.28	—
60	—	—	6.46	2.76	1.31	0.40	—
70	—	—	8.79	3.76	1.78	0.55	0.10
80	—	—	11.50	4.90	2.32	0.72	0.13
90	—	—	14.50	6.21	2.94	0.91	0.16
100	—	—	17.94	7.67	3.63	1.12	0.21
120	—	—	25.80	11.00	5.23	1.61	0.30
140	—	—	35.20	15.00	7.12	2.20	0.41
150	—	—	—	17.20	8.16	2.52	0.47
160	—	—	—	19.60	9.30	2.92	0.54
180	—	—	—	24.80	11.80	3.62	0.68
200	—	—	—	30.70	14.50	4.48	0.84
225	—	—	—	38.80	18.40	5.60	1.06
250	—	—	—	47.90	22.70	7.00	1.31
275	—	—	—	—	27.40	7.70	1.59
300	—	—	—	—	32.60	10.10	1.88

For SI: 1 inch = 25.4 mm, 1 pound per square inch = 6.895 kpa, 1 gallon per minute = 3.785 L/m.

Edwards & Zuck

October 8, 2010

Mr. Richard Carmody
National Grid
Canarsie Service Center
8302-8624 Ditmas Ave, Bldg. 31, 3rd Fl
Brooklyn, NY 11236

Re: Resorts World at Aqueduct Racetrack
110-00 Rockaway Blvd., Ozone Park, NY
E&Z Project No. A10301006

Dear Mr. Carmody:

We are the design engineers for the above referenced project. The project consists of an existing race-track Grandstand and Club House of approximately 1,000,000 sf. located between Rockaway Blvd., Centreville St., and North Conduit Ave., in the borough of Queens. The building is presently served by a 6" high-pressure gas service serving heating and domestic water uses.

The existing building to the best of our knowledge presently has the following gas loads:

- 3-dual fuel fired (TC meter) steam boilers with capacities of 1-600 BHP, 2-400 BHP approx 56,000 cfh total
- 2-firm gas domestic hot water heaters with capacities of 2-100 BHP approx 8000 cfh total
- Miscellaneous Food Service Loads approx 10,000 cfh (to be confirmed)

The renovation of the building will include proposed modifications of the existing gas loads as follows:

- Three existing steam boilers to remain and be converted to firm gas service.
- 2-firm gas domestic hot water heaters will be demolished and replaced by a new gas fired condensing plant with a total gas load of 10,000 cfh
- Existing Food Service Cooking Loads to be replaced by New Food Service Cooking Loads of 7000 cfh

Edwards & Zuck

The renovation will entail the following additional loads:

- 25 new Rooftop a/c units with gas-fired furnaces with capacities of 1200 cfh each, total 30,000 cfh.

- Food Service Kitchen Make-up Air units with a total load of 7000 cfh

We would like to secure "Firm" gas service for the entire building gas loads to avoid the need to install fuel oil storage tanks for the existing steam boiler plant and steam coils and steam distribution to and within the rooftop air-handling units.

We have attached a completed gas load letter that identifies proposed connected loads within the building.

Since this building will be renovated for a video lottery terminal casino the heating related loads will be substantially reduced and the building in our opinion will experience an actual gas demand load that is a fraction of the sum of the connected loads. The roof is being replaced and the envelope is being improved to make weather tight and improve energy efficiency.

We are requesting National Grid take this into account in determining the off-site infrastructure improvements needed to support this project. The following is our projected peak demand load taking into account these factors.

16,000 cfh 1-600 Existing steam boiler plant (existing 2-400BHP will be for standby)
20,000 cfh Sum total of new rooftop a/c units accounting for system heating diversity
10,000 cfh New domestic hot water heating plant
7000 cfh New Kitchen make-up air heating load
7000 cfh New Food Service Cooking load
60,000 cfh Total Firm Gas Demand Load

With regard to metering the heating loads-boilers, domestic hot water heaters and RTU furnaces can be served from a common meter depending upon pressures and meter turndown.

The three food service venues (cooking) will all need to be metered separately with separate gas risers.

We are enclosing herewith two (2) copies of an original Site Plan indicating the location of the building and existing gas service. Please contact us as to gas load acceptability, meter modifications, if any.

Edwards & Zuck

Should you require any additional information, please do not hesitate to call me.

Very truly yours,

EDWARDS & ZUCK, P.C.

Frank St. George
Senior Plumbing/Fire Protection Engineer

FS:rw
Enclosure
[P:\Aqueduct VLT\A10301006.Mech-Elec Engineering\JCJ\Documents\Utility Services\Gas\Nat Grid Gas Service 10-8-10gg.Doc]

cc: Mr. Richard Petraglia - National Grid

nationalgrid

Natural Gas Project Facilitation Form

Thank you for your inquiry! In order to determine requirements for new or replacement gas service, the following information needs to be completed. This information will be used for sizing of metering devices and service capacity.

No contact information on this form will be shared with any outside organization.

Project Name: Resorts World New York

Project Site Address 110-00 Rockaway Blvd

City/County/Zip: Ozone Park Queens NY

Existing Gas Equipment on Premises

Please enter the type of equipment (e.g. "Heat", "WH", "Cooking", etc.), the number of units, hours of operation, model number (if available), operating pressure, BTUs, and rate.

Type	Qty	Hrs	Model	Press.	SCFH	Rate
Space Heat Boilers	3	24	Leaver Brooks	28" wc	56000	Dual-Fuel
Domestic WH (To be removed)	2	24	Viking Superior	-	8000	Firm—Natural Gas Only
						--Select One--

New Gas Equipment to be installed on Premises

Type	AFUE	Qty	Hrs	Model	Press.	SCFH	Rate
Kitchen H&V Make-up Air Handlers	-	8	24	-	14" wc	7000	Firm—Natural Gas Only
Rooftop Unis	-	25	24	AAON	14" wc	30000	Firm—Natural Gas Only
Domestic Water Heaters	-	5	24	Aerco KC1000	10"	10000	Firm—Natural Gas Only
cooking	-		24	-	6"	7000	Firm—Natural Gas Only
							--Select One--
							--Select One--

Project Info

Project Type: Commercial

Construction Type: Existing Structure

Project Size (est'd): 1000000 sq ft

Please provide at least one contact for this project. A phone number or email address is required.

Customer Information:

Name: Resorts World (Michael Speller)

Address: 108-10 Rockaway Blvd East

City: Queens

State: NY Zip: 11420

Phone: 860 333 7736 Fax:

Mobile: 860 333 7736 Email:

Architect/Engineer:

Name: Edwards & Zuck Consulting Engineers

Address: 315 Park Avenue South

City: New York

State: NY Zip: 10010

Phone: 212 330 6200 Fax: 212 695 1898

Mobile: 917 797 4037 Email: fstgeorge@edz

Builder:

Name: Tudor Perini (John Hill)

Address: 1600 Arch Street

City:

Plumbing/Heating Contractor:

Name: Tudor Perini (John Hill)

Address: 1600 Arch Street

City:

	Philadelphia		Philadelphia
State:	Pa Zip: 19103	State:	Pa Zip: 19103
Phone:	610 688 4100 Fax:	Phone:	610 688 4100 Fax:
Mobile:	609 209 0606 Email: jhill@keatingne	Mobile:	609 209 0606 Email: keatingnet.com

Optional: Attach a project plan or schematic: aqueduct.pdf attach image

Comments/Questions:

submit project

If you need assistance with this form, please contact your Architect/Engineer:
New England: Mark Stafford—781-907-2196
New York: Richard Petraglia—718-270-0137

FUEL GAS LOAD (CFH)

EQUIPMENT	BOILERS	HWH	RTUs	MU AIR	F&B	FOOD CT	BUFFET KIT	ASIAN REST.	TOTAL
FLOOR									
GROUND	16,000	10,000			200				
FIRST						2500			
2ND							2500		
3RD								1800	
ROOF			20,000	7000					
SUB-TOTAL LOAD	16,000	10,000	20,000	7,000	200	2,500	2,500	1,800	60,000

GROUND FLOOR
GAS METER ROOM-EXISTING 6"
HP SERVICE

FIRE PUMP TEST

Aqueduct Race Track Queens, NY September 13, 1996
Conducted by: E. Nir - Royal Manhattan, T. Witt - Royal Jericho
SPLIT CASE - SINGLE STAGE SERIAL # 86PT10071 SIZE TYPE - AXGYR
Pump Manufacturer: Patterson. Rated GPM: 1500 Rated psi: 120 RPM: 3000
Driver Manufacturer: Cummins Model U-5040F2, HP-187, RPM: 3300
Controller Master Controls, Model No. DCFRAE-50

Flow(gpm)	Suction pressure	Discharge pressure(psi)	Net pressure (psi)
0	**	175*	120*
1,500	54	174*	120
2,250	53	160	106

NOTE: Readings were taken through a flow meter, which discharges back to the suction side of the pump installation. * - indicates that the relief valve was open, and water was flowing out through it during this reading. ** - the suction reading dropped to ~40 psi at churn, which is intuitively wrong, since the suction pressure should increase as flow decreases. The reasons for this anomaly could not be ascertained.

1) The fire pump started automatically at 115 psi, which agreed with the controller setting. The jockey pump started automatically upon drop-in-pressure. Due to faulty pressure gauges at the jockey pump controller, it could not be properly determined if the pressures at which the jockey pump started agreed with its controller setting.

2) The main fire pump started quickly upon both sets of batteries. No smoking was noted on the engine; no excessive noise from bearings was noted, and oil pressure and water temperature stayed within acceptable limits. Excessive leaking at packing glands was repaired during the test.

3) The jockey pump is set to come on at 140 psi, the main fire pump at ~120 psi. The relief valve was adjusted, per Royal's recommendation, to relieve at a maximum of 175 psi, as this is the rating of the sprinkler piping.

Hydrant flow test:

Flow location: Hydrant 60' west of Barn #5
Residual reading location: Adjacent hydrant, 500' south of flow location
No. and size of flow streams: 1-2.5" OB
Static pressure: 56 psi
Residual pressure: 46 psi
Pitot pressure: 38 psi
Flow: 1,040 gpm

AQUEDUCT VLT PROJECT
Queens, New York

27-Sep-10
E&Z # A10301006

Estimated Electrical Loads

Description	Area (sq ft)	VA/sq ft	Units	VA/unit	Connected kVA	Demand Factor	Demand	EM %	EM kVA
Lighting - Ground Fl									
Offices/BOH	65091.00	1.50			97.64			20	19.53
Loading Dock	43537.00	1.00			43.54			50	21.77
NYRA Offices/ BOH	194737.00	1.50			292.11			20	58.42
Lighting - First Fl									
Offices/BOH	10663.00	1.50			15.99			20	3.20
Gaming	94909.00	3.00			284.73			100	284.73
Food Service	30065.00	2.50			75.16			50	37.58
Retail/Lobby	15989.00	2.50			39.97			50	19.99
NYRA Offices/ BOH	111525.00	1.50			167.29			20	33.46
Lighting - Second Fl									
Offices/BOH	39379.00	1.50			59.07				
Gaming	75430.00	3.00			226.29			20	45.26
Food Service	29173.00	2.50			72.93			50	36.47
Retail/Lobby	1200.00	2.50			3.00			50	1.50
NYRA Offices/ BOH	114346.00	1.50			171.52			20	34.30
Lighting - Third Fl									
Offices/BOH	22004.00	1.50			33.01			20	6.60
Gaming	185538.00	3.00			556.61			100	556.61
Food Service	43955.00	2.50			109.89			50	54.94
tot area	1077541.00								
Tot Lighting					2248.74	1.00	**2248.7405**		1214.355
Plug Loads									
Receptacles- Ground Fl									
Offices/BOH	65091.00	3.00			195.27				
Loading Dock	43537.00	1.00			43.54				
NYRA Offices/ BOH	194737.00	3.00			584.21				
tot	303365.00								
Receptacles - First Fl									
Offices/BOH	10663.00	3.00			31.99				
Gaming	94909.00	1.50			142.36				
Food Service-non production	30065.00	3.00			90.20				
Retail/Lobby	15989.00	6.00			95.93				
NYRA Offices/ BOH	111525.00	3.00			334.58				
tot	263151.00								
Receptacles - Second Fl									
Offices/BOH	39379.00	3.00			118.14				
Gaming	75430.00	1.50			113.15				
Food Service-non production	29173.00	3.00			87.52				
Retail/Lobby	1200.00	6.00			7.20				
NYRA Offices/ BOH	114346.00	3.00			343.04				
tot	259528.00								
Receptacles - Third Fl									
Offices/BOH	22004.00	3.00			66.01				
Gaming	185538.00	1.50			278.31				
Food Service-non production	43955.00	3.00			131.87				
tot	251497.00								
Tot Receptacles					2663.30	NEC 220.44 (.5)	**1331.65**	**20**	**266.33**
Kitchen Production									
Ground Floor	22000.00	15.00			330.00				
First Floor	21689.00	15.00			325.34				
Second Floor	5380.00	15.00			80.70				
Third Floor	7800.00	15.00			117.00				
tot	56869.00				853.04	NEC 220.56 (.65)	**554.47**	**50**	**277.24**
VLT's									
First Floor			3300.00	350.00	1155.00	1.00	**1155.00**	**100**	**1155.00**
Second Floor			2200.00	350.00	770.00	1.00	**770.00**	**100**	**770.00**
Third Floor			3300.00	350.00	1155.00	1.00	**1155.00**	**100**	**1155.00**
tot					3080.00		3080.00		

Plasma Screen/Façade Ltg					**250.00**	1.00	**250.00**		
Elevators			6.00	40.00	**240.00**	1.00	**240.00**	**50**	**120.00**
Freight Elevators			4.00	60.00	**240.00**	1.00	**240.00**	**50**	**120.00**
Escallators			6.00	20.00	**120.00**	1.00	**120.00**		
Domestic Water Pumps					**150.00**	1.00	**150.00**	**100**	**150.00**
New Parking Garage	791770.00	0.50			**395.89**	1.00	**395.89**	**20**	**79.18**
MTA Bridge Connection	12000.00	3.00			**36.00**	1.00	**36.00**		
HVAC									
160 ton rooftop AC units compressor #1- 80 HP compressor #2 - 90 HP supply fan - 100 HP condensors - 4@3HP Return Fan- 50 HP total - 332HP/ 439FLA total - 365 kVA			18.00	365.00	6570.00	1.00			
75 ton rooftop AC units compressor #1- 2@13 HP compressor #2 - 2@20HP supply fan - 30 HP condensors - 1@3HP Return Fan- 15 HP total - 114HP/ 174FLA total - 145 kVA			3.00	145.00	435.00	1.00			
250 ton Chillers Compressor- 3@125 HP Fan - 3@20 HP Pump- 30HP total - 464HP/437 FLA total - 363kVA			3.00	363.00	1089.00	1.00			
50 ton air cooled compressor- 2 x 60 HP supply fan - 75 HP Return Fan - 40 HP total - 235 HP per unit			2.00	235.00	470.00	1.00			
Misc Fan Loads					200.00	1.00			
Kitchen Exhaust			8.00	25.00	200.00	1.00			
AHU's			30.00	10.00	300.00	1.00			
Total HVAC					**8629.00**	0.75	**6471.75**	**70**	**4530.23**
Grand Total					***18905.96***		**15118.50**		**9837.32**

conEdison
A conEdison, inc. company

September 27, 2010

Peter J. Sposato, P.E.
Edwards & Zuck, P.C.
Consulting Engineers
315 Park Avenue South, 17th Floor
New York, New York 10010

Re: Aqueduct Race Track

Dear Mr. Sposato:

This is in follow-up to our recent meeting concerning the above referenced project, and immanent expansion plans to such facility which is to include video slot machines and other major expansion/renovation activities.

Our primary discussion centered around the facility's existing 2.5mw electric loads and of its 4kv High Tension Service, along with short term needs (within 6-months of approvals) to support an additional 2.0mw of electrical demand loads (4.5mw total) as well as the anticipated service designs to meet this additional load increase. Secondary to our discussion was longer term needs (within 12-months of approvals) to support an approximate overall total facility load of 10mw.

Since the exlsting 4kv service is at its supply capacity and due to the magnitude of the increased electrical loads, the facility would be required to convert to a 4-feeder 27kv High Tension Service supply/design. Considering the short term 2.0mw needs are deemed "temporary" (a prelude to long term 10mw loads), the Company's construction activities (estimated at $2.4m) are chargeable. However, upon full completion/energization of the facility's new internal 4 feeder 27kv substation, transfer of the existing 2.5mw loads from the 4kv substation to the 27kv substation and the de-energization of the Company's existing 4kv service, the $2.4m temporary payment would then be refunded (without interest). The new 4-27kv service design will be built to a 2nd contingency configuration, whereby unlike the existing 4kv service, full load capability would still be available in the event of a loss to any 2 feeders and/or associated 27/13kv substation transformers occur.

Subsequent to our meeting, various conversations have had occurred, including the feasibility to increase the short term load requirements from 2.0mw to 4.0mw and turnaround commitments from the Company to meet the facility's short & long term needs. The "temporary" 4-27kv feeder supply from the Company will be initially built to the property-line to support 10mw, and within 6-months of receipt of the $2.4m payment (payable Consolidated Edison Company) the Company will have constructed to the property-line, a service supply capable to support up to 10mw.

All Company work will terminate at the property-line within customer owned/installed/maintained property-line boxes (along Rockaway Blvd approximately aligned to 109th Street). If you require any additional information and/or clarification, please feel free to contact me at (718) 802-5470 or (347) 203-2184.

Sincerely,

Steven Lewandowski
Dept. Manager, Energy Services
Brooklyn and Queens

cc: Brian Mcardle (Con Edison)
Irwin Stumer (Edwards & Zuck)

System Checksums

By .

Casino — **Variable Volume Reheat (30% Min Flow Default)**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 16
Outside Air: OADB/WB/HR: 95 / 75 / 99

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	0	0	0
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	0		0	0
Sub Total ==>	0	0	0	0
Internal Loads				
Lights	1,023,900	0	1,023,900	7
People	2,750,000	0	2,750,000	20
Misc	5,119,500	0	5,119,500	37
Sub Total ==>	8,893,400	0	8,893,400	65
Ceiling Load	0	0	0	0
Ventilation Load	0	0	2,550,667	19
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-82,222	-82,222	-1
Sup. Fan Heat			1,637,952	12
Ret. Fan Heat		682,482	682,482	5
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	8,893,400	600,259	13,682,279	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 15
OADB: 95

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	0	0
Sub Total ==>	0	0
Internal Loads		
Lights	1,023,900	13
People	1,500,000	20
Misc	5,119,500	67
Sub Total ==>	7,643,400	100
Ceiling Load	0	0
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing		
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	7,643,400	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 0

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	0	0.00
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	0	0	0.00
Sub Total ==>	0	0	0.00
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	0	0	0.00
Ventilation Load	0	-4,207,004	80.47
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		-1,020,898	19.53
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	0	-5,227,901	100.00

TEMPERATURES

	Cooling	Heating
SADB	60.1	68.0
Ra Plenum	75.0	68.0
Return	76.3	68.0
Ret/OA	78.5	40.7
Fn MtrTD	0.3	0.0
Fn BldTD	0.7	0.0
Fn Frict	2.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	460,673	138,202
Terminal	460,673	138,202
Main Fan	460,673	138,202
Sec Fan	0	0
Nom Vent	55,500	55,500
AHU Vent	55,500	55,500
Infil	0	0
MinStop/Rh	138,202	138,202
Return	460,673	138,202
Exhaust	55,500	55,500
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	12.0	40.2
cfm/ft²	4.61	1.38
cfm/ton	404.03	
ft²/ton	87.70	
Btu/hr·ft²	136.82	-52.28
No. People	5,000	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	1,140.2	13,682.3	11,093.6	460,673	78.5	64.6	69.0	56.9	54.9	61.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1,140.2	13,682.3								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	100,000		
Part	0		
Int Door	0		
ExFlr	0		
Roof	0	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-1,706.0	138,202	56.9	68.0
Aux Htg	0.0	0	0.0	0.0
Preheat	-3,521.9	55,500	0.0	56.9
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-5,227.9			

System Checksums

By .

Food & Beverage — **Variable Volume Reheat (30% Min Flow Default)**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 16
Outside Air: OADB/WB/HR: 95 / 75 / 99

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	0	0	0
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	0		0	0
Sub Total ==>	0	0	0	0
Internal Loads				
Lights	204,780	0	204,780	21
People	220,000	0	220,000	23
Misc	136,520	0	136,520	14
Sub Total ==>	561,300	0	561,300	58
Ceiling Load	0	0	0	0
Ventilation Load	0	0	302,453	31
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-9,778	-9,778	-1
Sup. Fan Heat			83,086	9
Ret. Fan Heat		34,619	34,619	4
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	561,300	24,841	971,680	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 15
OADB: 95

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	0	0
Sub Total ==>	0	0
Internal Loads		
Lights	204,780	45
People	110,000	24
Misc	136,520	30
Sub Total ==>	451,300	100
Ceiling Load	0	0
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing		
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	451,300	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 0

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	0	0.00
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	0	0	0.00
Sub Total ==>	0	0	0.00
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	0	0	0.00
Ventilation Load	0	-500,292	98.78
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		-6,188	1.22
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	0	-506,480	100.00

TEMPERATURES

	Cooling	Heating
SADB	57.7	68.0
Ra Plenum	75.0	68.0
Return	76.3	68.0
Ret/OA	81.5	4.0
Fn MtrTD	0.3	0.0
Fn BldTD	0.7	0.0
Fn Frict	2.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	23,368	7,011
Terminal	23,368	7,011
Main Fan	23,368	7,011
Sec Fan	0	0
Nom Vent	6,600	6,600
AHU Vent	6,600	6,600
Infil	0	0
MinStop/Rh	7,011	7,011
Return	23,368	7,011
Exhaust	6,600	6,600
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	28.2	94.1
cfm/ft²	1.17	0.35
cfm/ton	288.59	
ft²/ton	246.99	
Btu/hr·ft²	48.58	-25.32
No. People	400	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	81.0	971.7	703.4	23,368	81.5	66.7	74.7	54.5	53.2	58.5
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	81.0	971.7								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	20,000		
Part	0		
Int Door	0		
ExFlr	0		
Roof	0	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-105.6	7,011	54.5	68.0
Aux Htg	0.0	0	0.0	0.0
Preheat	-400.9	6,600	0.0	54.5
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-506.5			

RWNY HVAC LOADS

Name		Area (sq.ft.)		PHASE 1 SA cfm/sf	PHASE 1 Tot SA cfm	PHASE 1 A/C Load sf/ton	PHASE 1 Tot A/C Load ton	PHASE 2 SA cfm/sf	PHASE 2 Tot SA cfm	PHASE 2 A/C Load sf/ton	PHASE 2 Tot A/C Load ton	FUTURE SA cfm/sf	FUTURE Tot SA cfm	FUTURE A/C Load sf/ton	FUTURE Tot A/C Load ton
Ground Floor (Lower Level)															
RWNY / GeNY SPACES															
Casino Support offices		13,600		1	13600	400	34	0	0	0	0	0	0	0	0
Warehouse		16,200		0.5	8100	600	27	0	0	0	0	0	0	0	0
Employee Dining Area		6,200		1.5	9300	300	21	0	0	0	0	0	0	0	0
Employee Locker Rooms		3,400		0.5	1700	600	6	0	0	0	0	0	0	0	0
Secure Back of House		2,750		1	2750	400	7	0	0	0	0	0	0	0	0
Entertainment Support		2,000		1	2000	400	5	0	0	0	0	0	0	0	0
Future Spa		10,000		0	0	0	0	0	0	0	0	1	10000	400	25
Food & Beverage		6,000		1	6000	400	15	0	0	0	0	0	0	0	0
Net to Gross SF		15,000		0	0	0	0	0	0	0	0	0	0	0	0
	Subtotal	**75,150**	**75,150**		43450		114		0		0		10000		25
First Floor (Racetrack Level)															
Casino Gaming Area		95,000		4	380000	90	1056	0	0	0	0	0	0	0	0
Casino Gaming Support Area		15,000		4	60000	90	167	0	0	0	0	0	0	0	0
Food Court		25,000		1.25	31250	250	100	0	0	0	0	0	0	0	0
Circulation/Escalators/Elevators, etc		30,000		1.25	37500	250	120	0	0	0	0	0	0	0	0
Net to Gross SF		25,000													
	Sub-Total	190,000	190,000		508750		1442								
Second Floor															
Casino Gaming Area		100,000		0	0	0	0	4	400000	90	1111	0	0	0	0
Buffet		25,000		0	0	0	0	1.25	31250	250	100	0	0	0	0
Escalators/Elevators, etc		20,000		0	0	0	0	1.25	25000	250	80	0	0	0	0
Net to Gross SF		40,000													
	Sub-Total	185,000	185,000						456250		1291				
Third Floor															
Chinese Restaurant		16,000		0	0	0	0	1.25	20000	250	64	0	0	0	0
Event Room		15,000		0	0	0	0	1.25	18750	250	60	0	0	0	0
Night Club Lounge		10,000		0	0	0	0	1.25	12500	250	40	0	0	0	0
Future Gaming		100,000						0	0	0	0	4	400000	90	1111
Misc		85,000						0	0	0	0	1.25	106250	250	340
Net to Gross SF		24,000						0	0	0	0	0	0	0	0
	Sub-Total	250,000	250,000						51250		164		506250		1451
Total HVAC Loads			700150												

All Air Conditioning Loads are RTU Loads UON

* Loads are Chilled Water Loads

From: Maida, Bruce A. [mailto:Bruce.Maida@us.ngrid.com]
Sent: Tuesday, October 12, 2010 2:58 PM
To: Glenn Giustino
Cc: Carmody, Richard
Subject: 10904 Rockaway Blvd-Aqueduct Racetrack

Mr. Giustino,
National Grid has received and reviewed your load letter and the engineering analysis has been completed based on the gas loads and equipment specifications that you have provided for 10904 Rockaway Blvd-Aqueduct Racetrack. Although the existing service is adequate and we do not anticipate any construction on your property, a substantial high pressure main reinforcement as detailed below is required in order to supply gas as requested. Also, the customer will be responsible for any required modifications needed on the existing meter and regulator set up.

Based on the load letter and site plan provided there will be an upfront customer contribution. We will inform you of the upfront contribution required within three weeks once it is calculated by our engineering dept. If the gas load, operating pressure or service point of entry change, the estimate will be adjusted accordingly. When the job is assigned to our project manager if the actual footage required differs from the estimated footage, the cost of service will be adjusted accordingly.

Please note that gas capacity is typically reserved for a period of 12 months. A new analysis will be required if construction has not began within this time frame. We will proceed once our analysis is reviewed and accepted. Please contact the account Executive Mr. Richard Carmody on 718-270-5914 to advise on how they wish to proceed.

Also, there are prescriptive and custom rebates for AHRI (www.ahridirectory.org) certified equipment for your customer to take advantage of. Further information on our energy efficiency and rebate programs is available on line at www.powerofaction.com

10904 Rockaway Blvd

REINFORCEMENT REQ'D IN ORDER TO SUPPLY:
Press at customer location is 3.58 psig w/o load, 1.31 psig w/added load, 4.19 psig w/added load & reinf (12" stl)
Press at low point is 3.57 psig w/o load, 1.69 psig w/added load, 4.51 psig w/added load & reinf (12" stl)
Inlet to Gov 43: 3.52 psig w/o load, 1.64 psig w/added load, 4.46 psig w/added load & reinf
Velocity
12" plas: 55.52 ft/s
12" stl: 45.17 ft/s

Existing 6" stl high pressure 15# service is adequate
THE FOLLOWING REINF IS REQ'D TO SUPPLY:
Install ~2,800' of 12" stl high pressure 15# main on 109th Ave from 5' wec 111th St to 50' eec 122nd St.

Thanks,

Bruce Maida
Principal Engineer
Architect and Engineers Program
national**grid**
718-270-0104

GEDEON GRC CONSULTING
ENGINEERS • PLANNERS • CONSTRUCTION MANAGERS

6901 JERICHO TURNPIKE, SUITE 216, SYOSSET, NY 11791
TEL: 516.873.7010 • FAX: 516.873.7011

MINUTES OF MEETING

PROJECT: Aqueduct Racetrack – Project Liberty

DATE: September 1, 2010

PLACE: NYCDEP Office, Lefrak City, Queens, New York

ATTENDEES: Refer to the attached attendance list

PURPOSE: Discuss both the storm and sanitary sewer NYCDEP connection requirements

ITEMS DISCUSSED:

- Gedeon GRC Consulting (GRC) started the meeting by describing the overall project scope. GRC described the design approach to develop a sewer connection plan as follows:

  1. Obtain record drawings at the NYCDEP Local Borough Records Office located at Queens Borough Hall. GRC noted that the design team engineers have already begun reviewing record drawings.

  2. Determine the various drainage areas on the site as well as the associated sewer connections.

  3. Develop the design flow for both storm and sanitary sewers.

  4. Develop the allowable flow. GRC noted that an approach for determining the allowable flow will be determined and discussed it with NYCDEP prior to submission.

  5. Determine whether site detention is required.

- NYCDEP stated the following:

  1. The surrounding streets sewer system was designed for a 5-year storm. NYCDEP added that the system is adequate to handle the DEP required flow from the site. The proposed project may have to provide on-site detention based on the above mentioned computations.

2. A recent survey (1-year old) must be provided based on DEP requirements. Using the survey, the sewer connection plan must clearly delineate the various drainage areas with appropriate sewer connections.

3. All sewer connections must be verified at the local NYCDEP Office.

4. The proposed design will not have to consider the entire Aqueduct site, but focus only on the areas being developed, provided that the proposed project areas in question have separate sewer connection(s). While an overall drainage master plan will not be required for this project, all areas tied to the proposed project site sewer system and discharging together into the public system must be included in the computations.

- NYCDEP provided a drainage map and stated that there is a drainage easement along the paper street (de-mapped Linden Blvd Street).

- NYCDEP noted that the filing fee for the sewer connection is based on the project site area and not the overall Aqueduct site area.

- Street Final Altered Maps shall be included with the sewer connection submission.

- NYCDEP inquired whether the proposed design will provide water quality management. GRC replied that if the city sewer system surrounding the site area is discharging into a sewage treatment plant, water quality is not required by the New York State Department of Environmental Conservation (NYSDEC). GRC added that in the past all NYSDEC would require in this case is an Erosion and Sedimentation Control Plan, which will be provided as part of this project. GRC will contact NYSDEC to confirm. (*Note: it was subsequently discovered that all sewers in the area discharge into the Jamaica Sewage Treatment Plant*)

- NYCDEP stated that the review will take approximately 3 to 4 weeks, including a one-week triage period when DEP determines whether the submission is complete. NYCDEP added that reference to the filing with the NYC Department of Building, such as a filing application number, must be included on the sewer connection form.

The above represents the author's understanding of the meeting and shall serve as the official record of the meeting unless notified in writing within five (5) business days of the date of issue.

Respectfully submitted,

Rudolf J. Gedeon, PE
President/CEO

From: "Dow.Bill" <bdow@jcj.com>
To: "Dunderdale, Carolyn" <Carolyn.Dunderdale@ogs.state.ny.us>, "Fabian.Pete...
CC: "Dirolf, James" <James.Dirolf@ogs.state.ny.us>, "Nuciforo, Anthony" <Ant...
Date: 10/12/10 10:56 AM
Subject: Draft Environmental Assessment - 80% complete - Comments
Attachments: Aqueduct Storm .doc

From: Rudolf J. Gedeon, PE [mailto:rgedeon@gedeongrc.com]
Sent: Tuesday, October 12, 2010 7:19 AM
To: Dow.Bill
Subject: Re: Aqueduct SEQR Focus Group Meeting: Draft Environmental Assessment - 80% complete

Bill:

As discussed, here is the Storm Sewer text. According to the CEQR Manual (Chapter 13), if Best Management Practices (BMPs), approved by DEP and in compliance with DOB requirements are incorporated into the project, further analysis is not required. A SWPPP is required if construction is done in separately sewered areas. Our sanitary and storm flows discharge into a combined sewer system.

Rudolf J. Gedeon, PE
President/CEO

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www.gedeongrc.com <http://www.gedeongrc.com/>

The system has maximum capacity of 168 cfs. The existing paved area storm system north of the Grandstand building discharges through a 6" connection into an 8'-0" by 7'-0" reinforced concrete combined box culvert sewer along Rockaway Boulevard. Sanitary sewage and stormwater runoff from the Project Site is conveyed to the Jamaica Water Treatment Plant Water Pollution Control Plants (WPCP), located at 150-20 134 Street, Jamaica, which has a rated capacity of 100 million gallons per day ("mgd")[1].

The City's combined sewer system, under the jurisdiction of the NYCDEP Bureau of Water and Sewer Operations, collects sanitary sewage and stormwater runoff. This system consists of a grid of sewers located beneath streets, connecting to the city's network of fourteen Water Pollution Control Plants ("WPCP"), operated by NYCDEP's Bureau of Wastewater Treatment. Most of this system operates as a combined sewer system that carries both sanitary sewage from buildings and stormwater collected in catch basins and storm drains. During dry weather, combined sewers function as sanitary sewers conveying all flows to the WPCPs for treatment. During wet weather, large volumes of rainfall runoff can enter the system through catch basins along city streets and may inundate the WPCPs depending upon the intensity of the storm. In order to avoid flooding the plants, combined sewers are designed with regulators that divert excess flow to a combined sewer overflow ("CSO") outfall.

The City's WPCPs treat wastewater through a variety of physical and biological processes that remove solids so that, when treatment is complete, the water can be discarded into one of the city's waterways without adversely affecting water quality. In Queens, this treated wastewater or "effluent" is discharged into Jamaica Bay. The following processes are used at the City's treatment plants:

· Primary treatment involving the mechanical and physical removal of trash, grit, scum and sludge;
· Secondary treatment involving the biological treatment of remaining sewage
· Concentration, biological decomposition through anaerobic digestion, with energy recovery, and disposal of sludge; and
· Disinfection of liquid effluent.

The WPCP is regulated through a State Pollutant Discharge Elimination System ("SPDES") permit issued by the NYSDEC to regulate the quality of effluent and to ensure that the receiving water body is not adversely affected by the discharged effluent.

[1] 2008, New York Harbor Water Quality Report.

The Proposed Project would maintain both existing storm sewer connections, which ultimately discharge into the Jamaica Water Treatment Plant. Runoff from the employee parking lot north of the proposed parking garage will be discharged via the existing 6" connection into the combined box culvert on Rockaway Boulevard. Runoff from the western parking lot, roof surface, internal roadways and landscaped areas will be collected through an on-site drainage system and will be discharged southerly into the public sewer system south of the railroad via the existing 30"storm connection. The existing leaching gallery will be maintained to allow for water infiltration.

Four approximately 50,000-gallon storm water underground detention tanks would be installed on the project site to allow for a controlled release of stormwater into the environment. The fiberglass tanks would serve to capture and detain stormwater collected from the roof, surrounding pavement, and landscaped areas. The placement of these tanks on-site is not due to a deficiency in the capacity of the existing stormwater system but rather to contain and control outflow from the site to the existing stormwater system, per NYCDEP requirements. The tanks would connect to the storm sewer discharging south of the railroad.

In keeping with the sustainable design intent of this project, it is expected that a portion of the collected water would be reused for irrigation of the proposed plantings.

Design of all required stormwater conveyances including manholes, catch basins and pipes will be based on NYCDEP sewer design standards. NYSDEC approval is necessary for a SPDES General Permit for Stormwater Discharges and Construction activity.

The Proposed Project would not result in a significant adverse impact to the Jamaica WPCP. In addition, New York City is committed to maintaining adequate wastewater treatment throughout its WPCP network. No significant adverse sewer impacts are expected.

2008/2009 Traffic Study and 2010 Traffic Study Update

Philip Habib & Associates
Engineers and Planners • 226 West 26th Street • New York, NY 10001 • 212 929 5656 • 212 929 5605 (fax)

TECHNICAL MEMORANDUM

To: **O'Brien & Gere**

From: **Philip Habib/Larry Leung**

Date: **August 30, 2010**
(Revised October 6, 2010)

Re: **Aqueduct Casino Traffic Study Update (PHA No. 0910)**

Background

This technical memorandum provides an assessment of the recently selected plan for Aqueduct VLT operations. The plan is almost identical to the generic plan analyzed in the 2009 traffic study. As per the August 23rd 2010 conference call with NYSOGS and the Genting team, the following assumptions are reflected in the assessment:

- The proposal for 4,500 VLTs is the same as the 2009 study;
- The proposed plan would have over 7,000 parking spaces. This would include an approximately 2,858-space parking garage and the resurfacing of existing at-grade parking spaces;
- The hours of operation would be four hours longer than considered in the 2009 study (2 AM closure extended to 4 AM, and 10AM opening pushed ahead to 8AM); and
- The Pitkin Avenue entrance would no longer be open for either racetrack or casino traffic, but would remain open in the future as a pedestrian route and for emergency vehicle access. The analysis in the 2009 study assumed the Pitkin Avenue entrance would be open to traffic as per existing conditions.

The appendix to this memorandum provides a preliminary site plan for the proposed project.

Also discussed briefly during the conference call were pedestrian/bicycle changes proposed by NYCDOT along Rockaway Boulevard. Figure 1 shows the NYCDOT plan in the Aqueduct study area. As shown in Figure 1, in the vicinity of Aqueduct, NYCDOT proposes to provide refuge islands for pedestrians at those intersections where the existing striped median is not used for a left-turn lane. This would facilitate pedestrian crossings of Rockaway Boulevard,

but would not result in operational changes with respect to traffic flow (e.g., changes to the number of lanes, etc.) at the intersections analyzed in the 2009 traffic study. It should be noted, however, that NYCDOT is also planning to reduce the signal cycle length at intersections along Rockaway Boulevard from 120 seconds to 90 seconds in all periods except the weekday AM peak period. This planned change to signal cycle length is therefore also reflected in the updated analysis of No-Build and Build traffic conditions.

Traffic Analysis

The 2009 travel demand forecast for the VLT installation at Aqueduct was developed from estimates of annual usage at proposed VLT installations around New York State. These estimates were primarily based on the number of gaming positions (i.e., VLTs) that would be provided and the anticipated market for gaming activity in proximity to each venue. The 2009 forecast also utilized data on actual demand at the VLT operation at Yonkers Raceway. Since the number of VLTs to be installed at Aqueduct would remain unchanged under the proposed project, the overall travel demand generated at the site is also expected to remain relatively unchanged from the earlier forecast. With the proposed increase in operating hours, the total number of trips generated by the project would be spread out over more hours of the day, and there would likely be somewhat fewer trips in each peak hour. However, this updated traffic analysis conservatively uses the peak hour travel demand from the 2009 travel demand forecast, and focuses on the effect of the Pitkin Avenue access elimination. The analysis utilizes the most current version of the HCS+ software (Version 5.4).

Figure 2 shows the trip arrival/departure distribution from the 2009 study. As shown in Figure 2, approximately 15 percent of the casino's traffic demand was expected to use the Pitkin Avenue entrance. Figure 3 shows the redistribution of this demand with the Pitkin Avenue entrance closed. As shown in Figure 3, demand at the Aqueduct driveway intersection with Rockaway Boulevard would increase by eight percent, from 35 percent to 43 percent of total demand, with the remaining seven percent distributed to North Conduit Avenue. In addition to the casino traffic redistribution, the existing Aqueduct traffic using Pitkin Avenue was also redistributed to the other entrances. Figure 4 shows the revised incremental traffic flow in the study area which is the sum of both the casino traffic and the Aqueduct traffic diverted from the Pitkin Avenue entrance. Figure 5 shows the 2011 Build condition traffic volumes for each peak hour analyzed.

The traffic capacity analysis was again conducted for the 2011 Build condition based on the revised traffic assignment. The 2011 No-Build condition was unchanged with the exception of the reduction in signal cycle lengths planned by NYCDOT at intersection along Rockaway Boulevard. Table 1 shows the results of the updated analyses of No-Build and Build traffic conditions, while Table 2 shows the specific traffic improvement measures that would be incorporated in the Build condition at three study area intersections on Rockaway Boulevard (at the Aqueduct driveway, at 111th Street, and at Linden Boulevard). As shown in Table 1, with implementation of the improvement measures, there would be no significant adverse traffic impacts based on this updated analysis, similar to the findings of the 2009 traffic study.

Compared to the 2009 study, there would no longer be any traffic improvements needed at the Cross Bay Boulevard/Pitkin Avenue intersection. As shown in Table 2, the traffic

improvement measures (i.e., adjustments to signal timing) at the Rockaway Boulevard/Linden Boulevard intersection would remain unchanged from the 2009 study. At the Aqueduct driveway, the improvement measures would consist of changes to signalization, curbside parking regulations and lane markings, including enforcement of the no standing regulation on the south side of the eastbound approach for a longer period of the day (i.e, beginning at 12 noon instead of 1 pm), and the re-striping of the exit driveway for three lanes. Lastly, Table 2 shows that at the 111th Street intersection, a minor (2-second) signal timing change would be incorporated in NYCDOT's signal timing plan in the Saturday PM peak hour.

Although there would be no significant adverse traffic impacts, it should be noted that the redistribution of Pitkin Avenue traffic would substantially increase the eastbound right-turn volume at the Rockaway Boulevard site entrance, and also decrease the level of service for the westbound left-turn from the boulevard into the project site. Table 1 shows that the eastbound right-turn would be operating at level of service D in the Saturday midday compared to LOS C in the 2009 traffic study. It should also be noted that the exit driveway is required to have three approach lanes at the signal at Rockaway Boulevard, similar to the 2009 study.

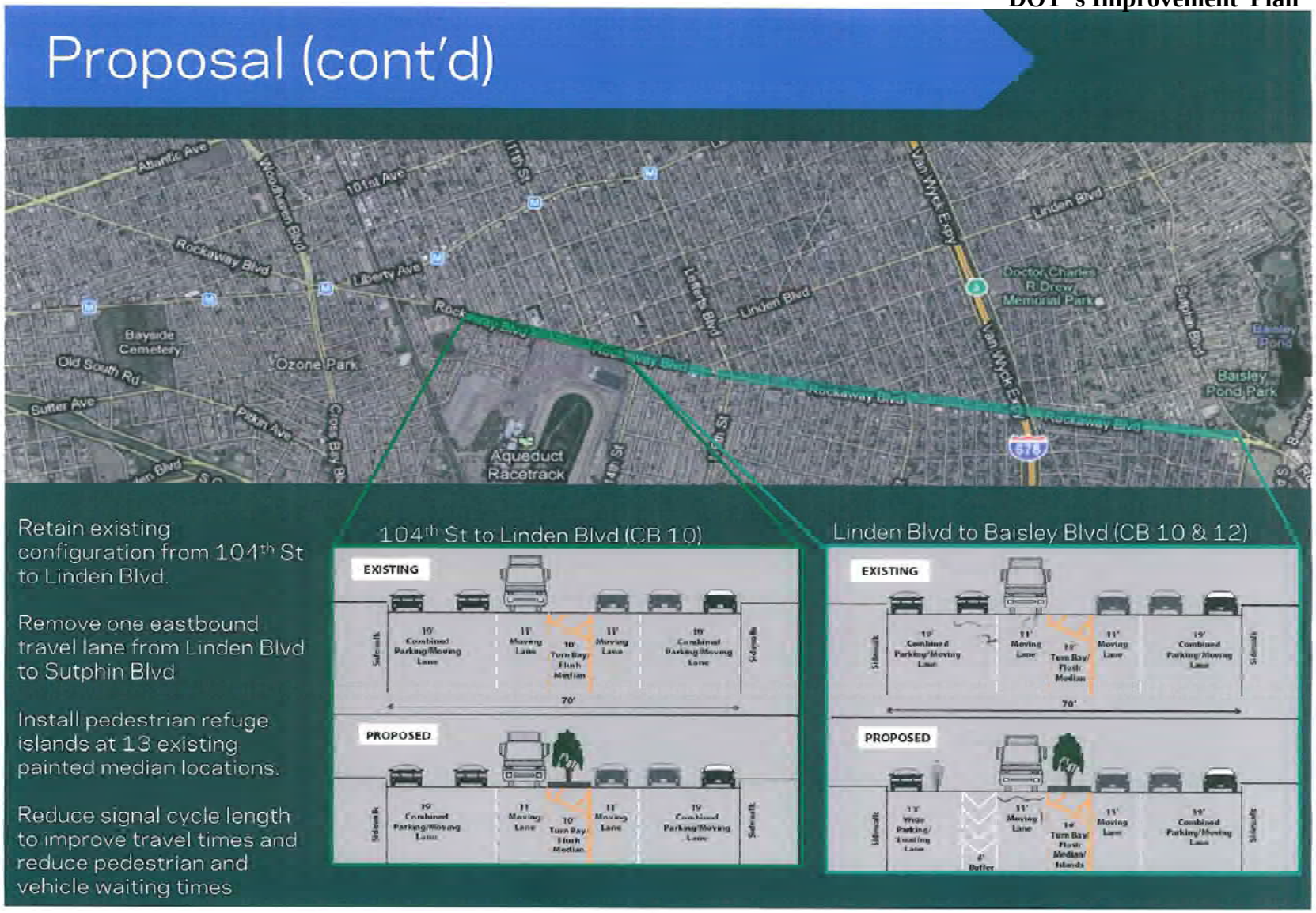
Parking

No changes to the findings of the parking analysis are expected due to the proposed project (see Table 3). The 2009 study projected a peak accumulation of approximately 5,000 spaces during the 3-4 PM period on Saturday when peak day Aqueduct horse racing demand overlaps with casino demand. With over 7,000 spaces programmed into the proposed plan, no significant parking impacts are expected as there will be ample capacity provided.

Summary

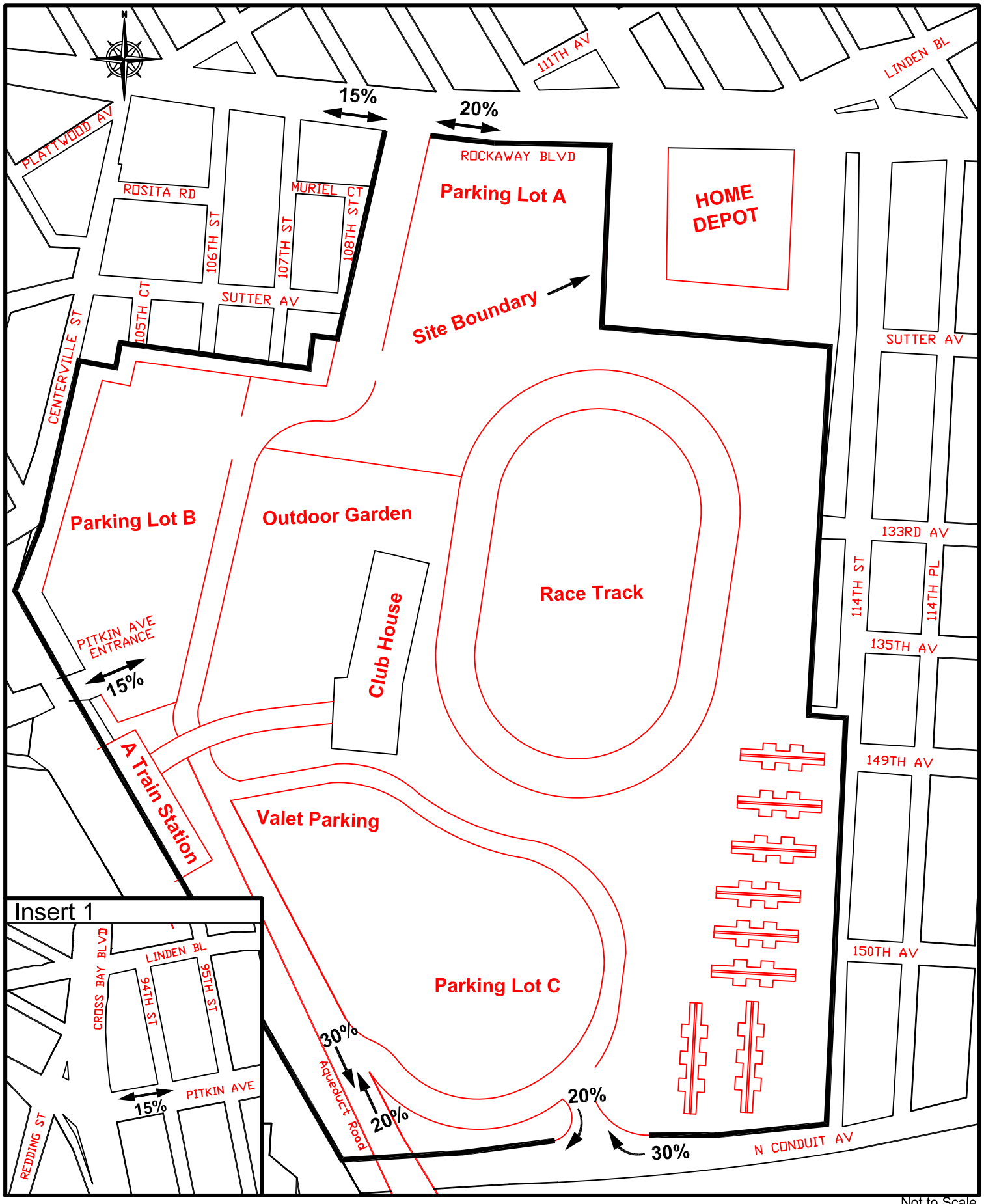
This updated memo addresses changes to future traffic conditions associated with the current project's new access plan as well as NYCDOT's newly-announced operational traffic changes at intersections along Rockaway Boulevard. The closure of the Pitkin Avenue entrance would affect about 15 percent of all traffic entering Aqueduct, while NYCDOT's changes are primarily operational and intended to enhance pedestrian conditions on the boulevard. With the Pitkin Avenue entrance closed and NYCDOT's planned operational changes, the proposed project – with improvements at three off-site locations – would not result in any significant adverse traffic impacts. However traffic along the Rockaway Boulevard corridor would increase, and some movements at the Aqueduct driveway would have poorer levels of service compared to those forecast in the 2009 study. The future parking supply would be ample to accommodate projected peak demand, and no significant adverse parking impacts are expected.

DOT 's Improvement Plan



Aqueduct Racetrack Video Lottery Terminals Figure 2

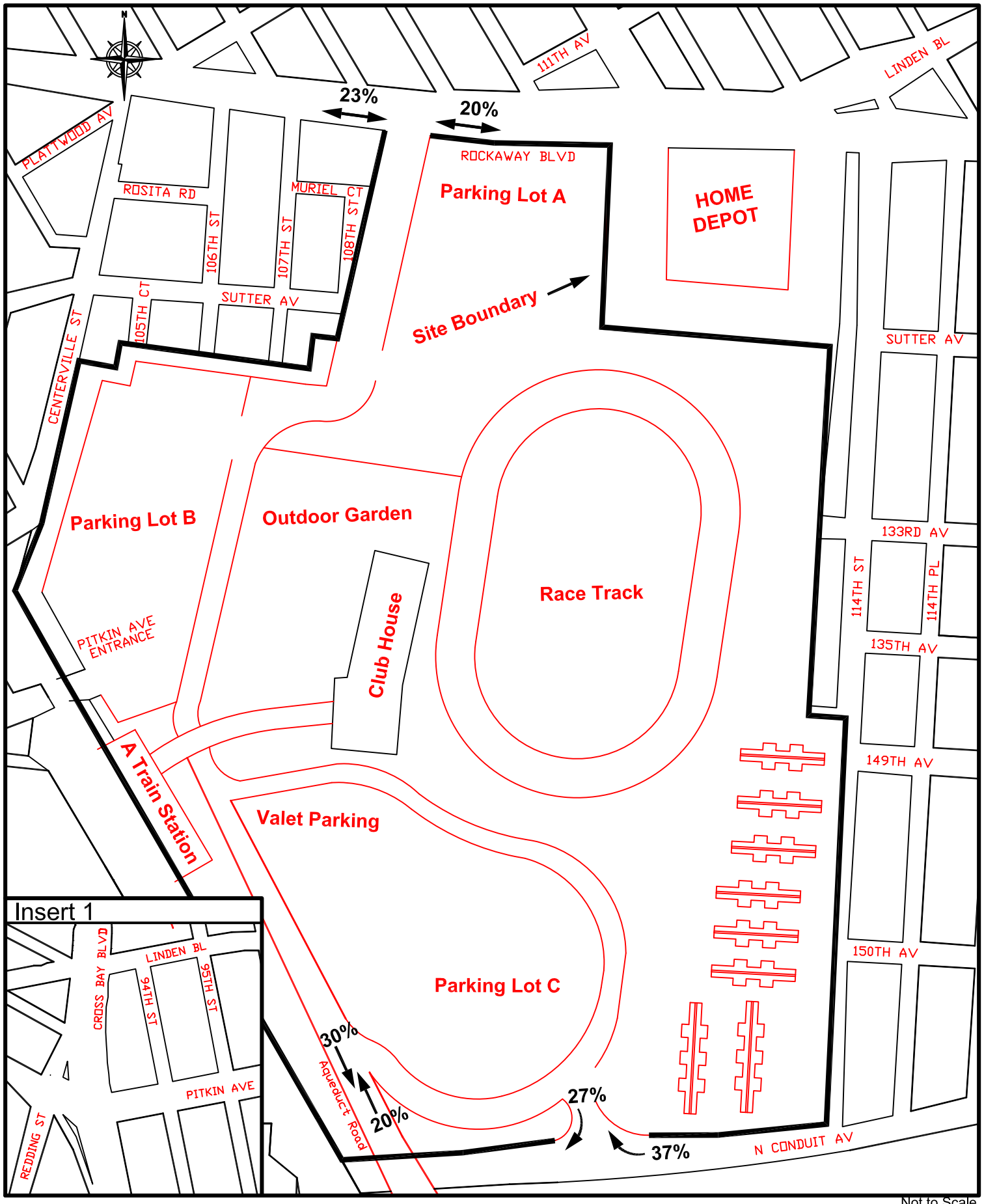
Old Traffic Increment Assignment Pattern with Pitkin Avenue



Aqueduct Racetrack Video Lottery Terminals

Figure 3

Revised Traffic Increment Assignment Pattern



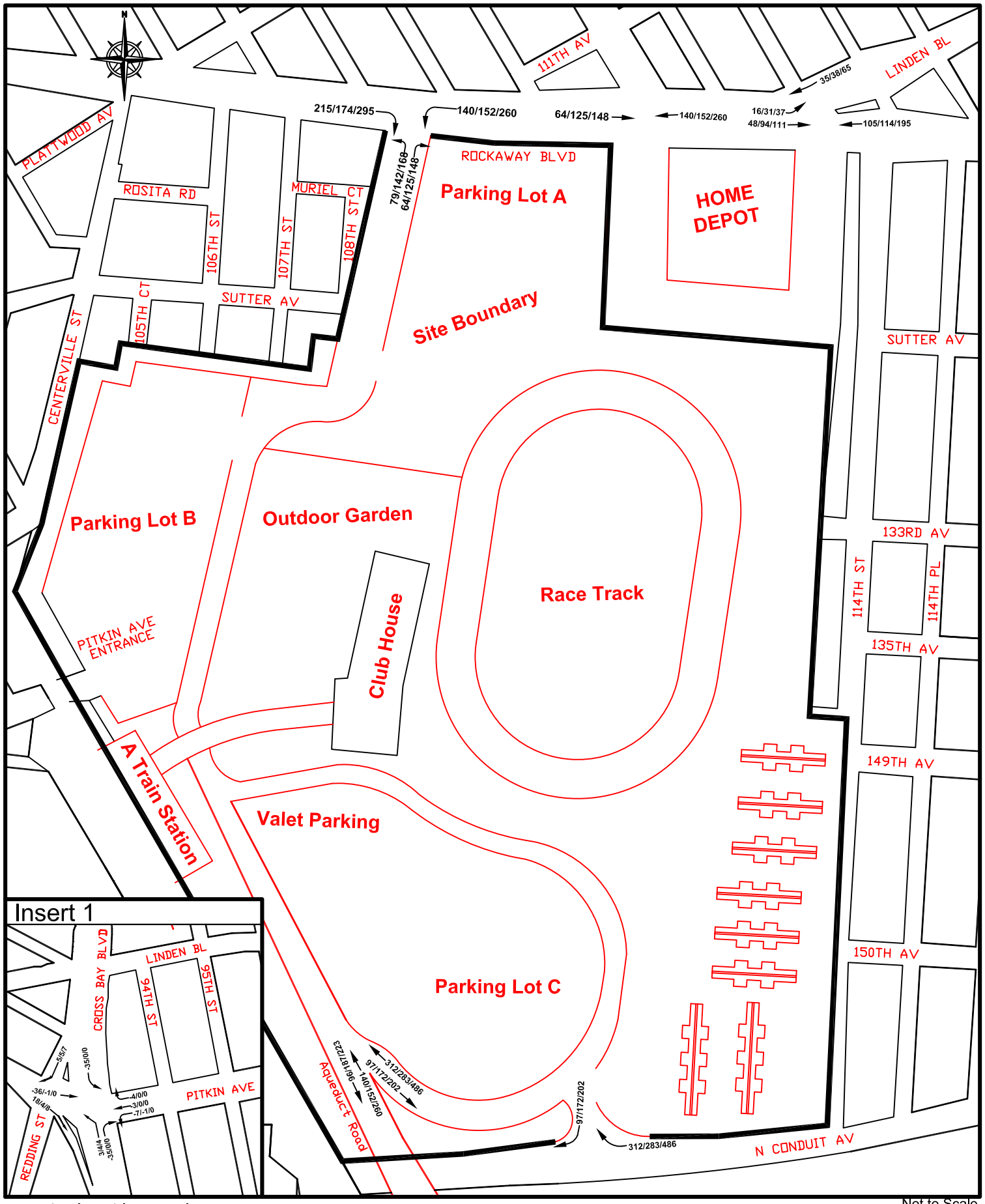
- Directional Assignment

Not to Scale

Aqueduct Racetrack Video Lottery Terminals

Figure 4A

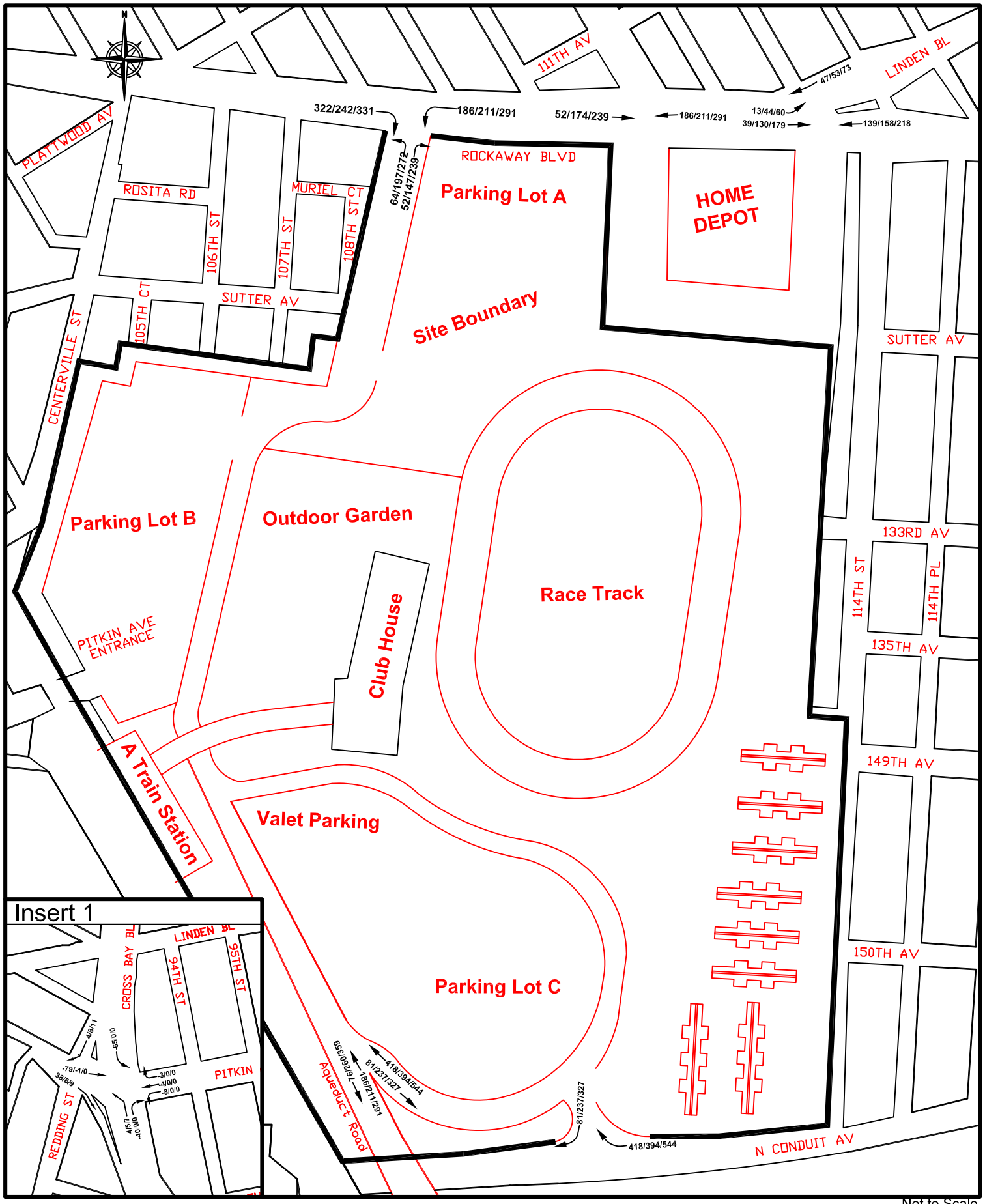
Revised Project Increment Weekday (Friday) Traffic Volumes



Aqueduct Racetrack Video Lottery Terminals

Figure 4B

Revised Project Increment Saturday Traffic Volumes



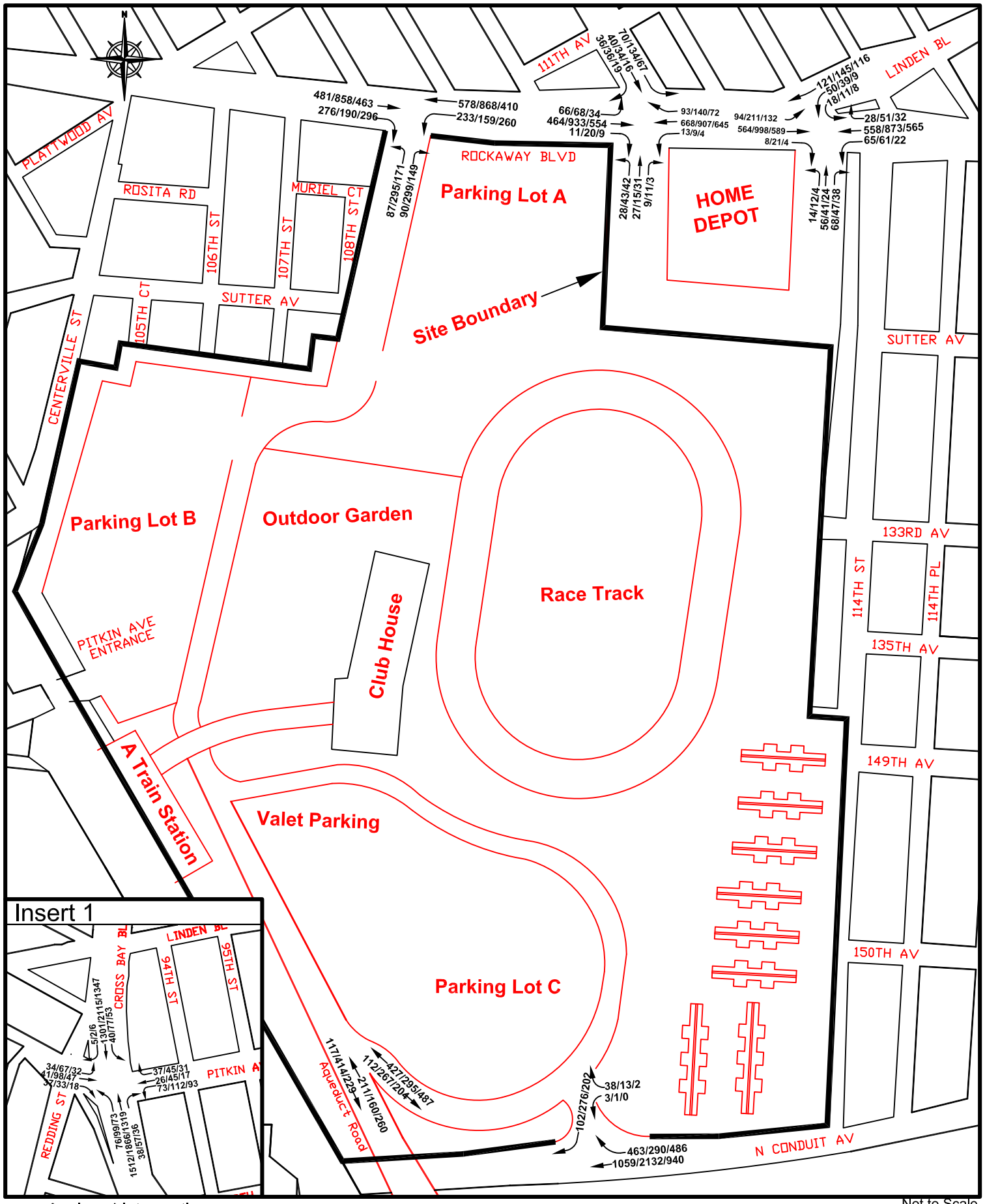
- Analyzed Intersections XX/XX/XX - MD/PM/EVE

Not to Scale

Aqueduct Racetrack Video Lottery Terminals

Figure 5A

2011 Build Weekday Traffic Volumes



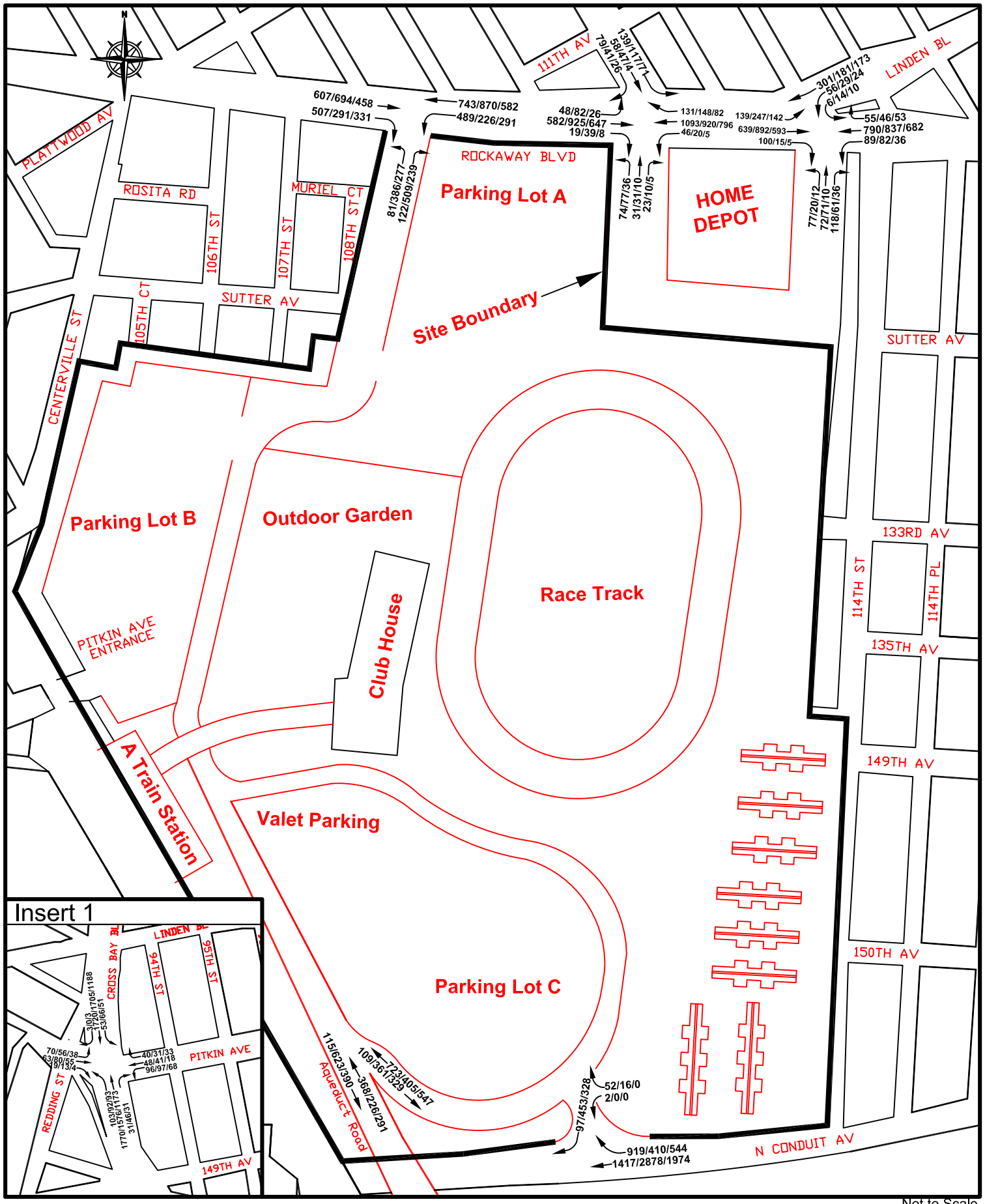
- Analyzed Intersections XX/XX/XX - MD/PM/EVE

Not to Scale

Aqueduct Racetrack Video Lottery Terminals

Figure 5B

2011 Build Saturday Traffic Volumes



- Analyzed Intersections XX/XX/XX - MD/PM/EVE

Not to Scale

Table 1

2011 Build Conditions with Improvements

Level of Service at Analyed Intersctions

Weekday (Friday)

Signalized Intersection	Lane Group	2011 No-Build MD Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 Build MD Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 No-Build PM Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 Build PM Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 No-Build EVE Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 BuildEVE Peak Hour V/C Ratio	Delay (sec/veh)	LOS
Rockaway Blvd (E-W) @	EB-TR	0.38	14.6	B	0.77	30.3	C	0.40	14.6	B	0.68	25.7	C	0.34	14.1	B	0.80	31.5	C
Aqueduct Driveway/108th St (N-S)	WB-L	0.32	16.1	B	0.74	43.7	D	0.04	11.8	B	0.57	35.6	D	0.00	11.3	B	0.74	42.7	D
	WB-T	0.41	15.0	B	0.41	14.4	B	0.61	18.0	B	0.60	17.2	B	0.29	13.6	B	0.27	11.3	B
	NB-L	0.01	16.9	B	0.13	18.7	B	0.24	19.4	B	0.48	23.7	C	0.01	16.9	B	0.31	22.9	C
	NB-LR	0.03	17.2	B	0.13	18.9	B	0.23	19.4	B	0.41	22.9	C	0.00	16.8	B	0.22	22.0	C
	NB-R	0.03	17.2	B	0.12	18.7	B	0.20	19.1	B	0.36	22.1	C	0.00	16.8	B	0.19	21.6	C
Rockaway Blvd (E-W) @	EB-L	0.27	15.4	B	0.33	17.6	B	0.43	22.4	C	0.59	36.8	D	0.11	12.6	B	0.17	13.8	B
111th St (N-S)	EB-TR	0.29	13.6	B	0.34	14.1	B	0.39	14.5	B	0.45	15.2	B	0.31	13.9	B	0.43	15.2	B
	WB-L	0.04	11.7	B	0.04	11.8	B	0.05	11.9	B	0.05	12.1	B	0.01	11.4	B	0.01	11.4	B
	WB-TR	0.46	15.7	B	0.56	17.2	B	0.66	19.2	B	0.77	22.3	C	0.32	13.9	B	0.50	16.1	B
	NB-LTR	0.07	17.4	B	0.07	17.4	B												
	NB-DefL							0.14	18.5	B	0.14	18.5	B	0.11	18.1	B	0.11	18.1	B
	NB-TR							0.05	17.3	B	0.05	17.3	B	0.06	17.4	B	0.06	17.4	B
	SB-LTR	0.31	20.7	C	0.31	20.7	C	0.50	24.8	C	0.50	24.8	C	0.23	19.5	B	0.23	19.5	B
Rockaway Blvd (E-W) @	EB-L	0.17	10.0	A	0.22	12.0	B	0.50	23.8	C	0.64	34.4	C	0.20	9.6	A	0.33	14.1	B
Linden Blvd (N-S)	EB-TR	0.31	8.8	A	0.33	9.0	A	0.53	11.1	B	0.58	11.9	B	0.30	8.8	A	0.37	9.4	A
	WB-L	0.24	15.8	B	0.25	16.2	B	0.39	21.7	C	0.46	25.8	C	0.07	13.2	B	0.09	13.5	B
	WB-TR	0.37	15.6	B	0.44	16.6	B	0.61	19.3	B	0.70	21.2	C	0.29	14.7	B	0.43	16.3	B
	NB-LTR	0.31	31.5	C	0.31	31.5	C	0.24	30.6	C	0.24	30.6	C	0.14	29.4	C	0.14	29.4	C
	SB-LT	0.22	31.0	C	0.22	31.0	C	0.16	30.0	C	0.16	30.0	C	0.06	28.7	C	0.06	28.7	C
	SB-R	0.28	23.6	C	0.39	25.9	C	0.37	25.4	C	0.50	28.8	C	0.15	21.2	C	0.34	24.3	C
Pitkin St (E-W) @	EB-LTR	0.22	34.3	C	0.18	33.7	C	0.34	36.1	D	0.34	36.0	D	0.15	33.3	C	0.15	33.3	C
Cross Bay Blvd (N-S)	WB-LTR	0.60	48.1	D	0.50	42.8	D	0.96	130.3	F	0.95	124.0	F	0.55	44.8	D	0.55	44.8	D
	NB-L	0.23	24.4	C	0.24	25.0	C	0.32	43.7	D	0.33	44.0	D	0.23	26.1	C	0.25	26.8	C
	NB-TR	0.85	32.6	C	0.83	31.4	C	0.98	55.0	D	0.98	55.0	D	0.75	28.1	C	0.75	28.1	C
	SB-L	0.26	34.8	C	0.14	26.8	C	0.27	38.8	D	0.27	38.8	D	0.17	26.9	C	0.17	26.9	C
	SB-TR	0.66	25.6	C	0.66	25.6	C	1.04	117.3	F	1.04	117.3	F	0.64	25.3	C	0.64	25.3	C
North Conduit Ave (E-W) @ Aqueduct Racetrack (SB) (Unsignalized)	SB-R	0.01	9.1	A	0.20	12.6	B	0.16	10.2	B	0.43	12.8	B	0.00	9.1	A	0.45	16.8	B

Saturday

Signalized Intersection	Lane Group	2011 No-Build MD Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 Build MD Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 No-Build PM Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 Build PM Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 No-Build EVE Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 Build EVE Peak Hour V/C Ratio	Delay (sec/veh)	LOS
Rockaway Blvd (E-W) @	EB-TR	0.54	16.7	B	EB-T 0.43	17.4	B	0.33	13.8	B	0.64	25.0	C	0.29	13.6	B	0.78	31.0	C
Aqueduct Driveway/108th St (N-S)					EB-R 0.90	45.0	D												
	WB-L	1.11	266.6	F	0.86	42.3	D	0.07	12.1	B	0.75	44.4	D	0.00	11.3	B	0.79	44.1	D
	WB-T	0.48	15.9	B	0.42	11.3	B	0.60	17.8	B	0.58	16.2	B	0.41	14.9	B	0.37	11.8	B
	NB-L	0.03	17.1	B	0.16	23.1	C	0.30	20.1	C	0.65	28.5	C	0.01	16.9	B	0.51	27.2	C
	NB-LR	0.09	17.8	B	0.23	24.5	C	0.45	23.0	C	0.70	32.2	C	0.00	16.8	B	0.38	25.1	C
	NB-R	0.09	17.8	B	0.22	24.4	C	0.42	22.5	C	0.63	29.7	C	0.00	16.8	B	0.32	24.3	C
Rockaway Blvd (E-W) @	EB-L	0.37	20.9	C	0.55	38.0	D	0.48	23.8	C	0.67	43.5	D	0.10	12.5	B	0.16	14.2	B
111th St (N-S)	EB-TR	0.37	14.5	B	0.41	14.9	B	0.36	14.2	B	0.42	13.7	B	0.28	13.5	B	0.44	15.2	B
	WB-L	0.16	13.3	B	0.17	13.6	B	0.09	12.5	B	0.11	12.0	B	0.02	11.4	B	0.02	11.5	B
	WB-TR	0.69	19.7	B	0.81	23.7	C	0.62	18.1	B	0.73	19.5	B	0.42	15.0	B	0.62	18.1	B
	NB-LTR	0.26	20.4	C	0.26	20.4	C	0.25	20.2	C	0.27	21.8	C	0.10	17.9	B	0.10	17.9	B
	SB-LTR	0.11	17.9	B	0.11	17.9	B	0.08	17.5	B	0.08	18.8	B	0.03	17.1	B	0.03	17.1	B
	SB-LTR	0.65	29.5	C	0.65	29.5	C	0.50	24.7	C	0.54	27.1	C	0.26	19.9	B	0.26	19.9	B
Rockaway Blvd (E-W) @	EB-L	0.31	14.9	B	0.41	22.9	C	0.51	22.0	C	0.71	37.4	D	0.17	10.6	B	0.36	17.7	B
Linden Blvd (N-S)	EB-TR	0.41	9.7	A	0.46	11.8	B	0.42	9.8	A	0.49	10.5	B	0.23	8.2	A	0.33	9.0	A
	WB-L	0.38	19.5	B	0.45	24.6	C	0.40	20.5	C	0.49	25.3	C	0.11	13.5	B	0.14	14.1	B
	WB-TR	0.49	17.1	B	0.62	21.3	C	0.53	17.8	B	0.64	19.8	B	0.38	15.8	B	0.54	17.9	B
	NB-LTR	0.72	43.1	D	0.61	35.2	D	0.36	32.2	C	0.36	32.2	C	0.14	29.4	C	0.14	29.4	C
	SB-LT	0.20	30.4	C	0.17	27.7	C	0.16	30.1	C	0.16	30.1	C	0.12	29.5	C	0.12	29.5	C
	SB-R	0.88	62.7	E	0.90	62.8	E	0.46	27.7	C	0.65	35.0	C	0.32	23.9	C	0.56	29.6	C
Pitkin St (E-W) @	EB-L				0.32	38.1	D				0.25	36.2	D						
Cross Bay Blvd (N-S)	EB-LTR	0.36	36.4	F	-TR 0.21	34.6	C	0.23	34.4	C	-TR 0.22	34.8	C	0.14	33.2	C	0.14	33.2	C
	WB-LTR	1.02	189.6	F	0.77	61.6	E	0.84	74.0	E	0.83	72.4	E	0.50	42.7	D	0.50	42.8	D
	NB-L	0.33	38.1	D	0.35	38.9	D	0.28	37.6	D	0.30	38.2	D	0.25	23.6	C	0.27	24.4	C
	NB-TR	0.91	37.4	D	0.91	36.9	D	0.79	29.4	C	0.79	29.5	C	0.61	24.5	C	0.61	24.5	C
	SB-L	0.38	41.6	D	0.17	33.3	C	0.22	32.5	C	0.23	32.5	C	0.15	19.6	B	0.15	19.6	B
	SB-TR	0.78	29.0	C	0.78	29.0	C	0.82	30.7	C	0.82	30.7	C	0.58	23.9	C	0.58	23.9	C
North Conduit Ave (E-W) @ Aqueduct Racetrack (SB) (Unsignalized)	NB-R	0.02	9.8	A	0.18	11.6	B	0.35	12.2	B	0.80	29.3	D	0.00	9.3	B	0.44	13.2	B

NOTES:
EB-Eastbound, WB-Westbound, NB-Northbound, SB-Southbound
L-Left, T-Through, R-Right, DfL-Analysis considers a Defacto Left Lane on this approach .
V/C Ratio - Volume to Capacity Ratio, SEC/VEH - Seconds per vehicle
LOS - Level of service
* -Significant Impact in the 2011 Build Condition
Analysis is based on the 2000 Highway Capacity Manual Methodology (HCS 2000+ 5.4).

TABLE 2
TRAFFIC IMPROVEMENT MEASURES

Intersection	Peak Hour	Approach	No Build Signal Timings (Seconds) (1)(2)		Proposed Signal Timing (Seconds) (1)						Proposed Improvement Measures
			AM	Other Times	Fri MD	Fri PM	Fri Eve	SAT MD	SAT PM	SAT EVE	
Rockaway Boulevard (E-W)	All	EB/WB	70	50	39	39	39	46	39	38	Rockaway Boulevard EB/WB: -11/-4/-11/-12 sec. (Fri all times/SAT MD/SAT PM/SAT EVE.)
Aqueduct Entrance (south side)		WBLT		…	12	12	15	11	13	17	Add lagging WB phase ; transfer 12/15/11/13/17 sec. to new WB phase Fri MD & PM/ Fri Eve/
		NB/SB	50	40	39	39	36	33	38	35	SATMD/SAT PM/SAT EVE. Aqueduct Entrance NB/SB: -1 / -4 / -7/ -2/ -5 sec in Fri MD & PM / Fri EVE/ SAT MD/ SAT PM/ SAT EVE. Extend No Standing regulation on the south side of the eastbound approach from 1pm - 7pm to 12pm - 7pm. Exit to be striped formally for 3 lanes (L,LR,R).
Rockaway Boulevard (E-W)	All	EB/WB	70	50	50	50	50	50	52	50	Transfer 2 sec. from NB/SB to EB/WB in SAT PM
111st Street (N-S)		NB/SB	50	40	40	40	40	40	38	40	
Rockaway Boulevard (E-W)	All	LPI	6	6	6	6	6	6	6	6	Transfer 3 sec. from EB/WB to NB/SB in SAT MD
Linden Boulevard (north side)		NB/SB	32	24	24	24	24	27	24	24	
Home Depot Entrance (southside)		EB/SB RT	12	12	12	12	12	12	12	12	
		EB/WB	70	48	48	48	48	45	48	48	

Notes :

(1) Signal timings shown indicate Green plus Yellow (including All Red) for each phase.

(2) No-Build signal timings reflect planned changes by NYCDOT on Rockaway Boulevard.

TABLE 3

Parking Accumulation For The Proposed VLT and Aqueduct Racetrack

	2011 Friday						
	Proposed VLT			Aqueduct Racetrack			Total
Time	In	Out	Accumulation	In	Out	Accumulation	Accumulation
7-8	68	38	30	0	0	0	30
8-9	70	41	59	36	0	36	95
9-10	175	53	181	87	8	115	296
10-11	418	173	426	204	20	299	725
11-12	502	243	685	289	51	537	1,222
12-01	690	310	1,065	509	79	967	2,032
01-02	604	416	1,253	216	120	1,063	2,316
02-03	620	453	1,420	141	147	1,057	2,477
03-04	650	539	1,531	118	184	991	2,522
04-05	657	627	1,561	80	292	779	2,340
05-06	745	609	1,697	38	592	225	1,922
06-07	897	564	2,030	35	131	129	2,159
07-08	1,038	630	2,438	11	106	34	2,472
08-09	1,285	719	3,004	4	22	16	3,020
09-10	1,066	920	3,150	4	14	6	3,156
10-11	368	620	2,898	0	6	0	2,898
11-12	274	704	2,468	0	0	0	2,468
12-11	166	643	1,991	0	0	0	1,991
1-2	64	1,040	1,015	0	0	0	1,015
2-3	55	1,070	0	0	0	0	0

	2011 Saturday						
	Proposed VLT			Aqueduct Racetrack			Total
Time	In	Out	Accumulation	In	Out	Accumulation	Accumulation
7-8	36	24	12	0	0	0	12
8-9	53	37	28	36	0	36	64
9-10	127	33	122	114	29	121	243
10-11	598	137	583	118	66	173	756
11-12	568	333	818	659	161	671	1,489
12-01	914	243	1,489	1,303	165	1,809	3,298
01-02	810	493	1,806	744	189	2,364	4,170
02-03	855	567	2,094	568	209	2,723	4,817
03-04	916	741	2,269	346	283	2,786	5,055
04-05	899	840	2,328	214	315	2,685	5,013
05-06	1,036	848	2,516	95	520	2,260	4,776
06-07	1,334	888	2,962	91	1,706	645	3,607
07-08	1,228	811	3,379	31	585	91	3,470
08-09	1,428	1,168	3,639	11	80	22	3,661
09-10	1,506	1,033	4,112	2	16	8	4,120
10-11	405	840	3,677	0	8	0	3,677
11-12	383	936	3,124	0	0	0	3,124
12-11	245	790	2,579	0	0	0	2,579
1-2	80	1,284	1,375	0	0	0	1,375
2-3	18	1,393	0	0	0	0	0

APPENDIX


ACCESS FROM HIGHWAY
ACCESS FROM ROCKAWAY BOULEVARD
ACCESS FROM NEW YORK CITY SUBWAY
ACCESS FROM NEW YORK CITY SUBWAY
NASSAU EXPRESSWAY
BELT PARKWAY
ROCKAWAY BOULEVARD
CENTERVILLE STREET
A
A

A. INTRODUCTION

This attachment describes the traffic and parking characteristics and potential impacts associated with the Proposed Project, which is the addition of 4,500 video lottery terminals ("VLTs") at Aqueduct Racetrack in the Ozone Park neighborhood of Queens. In the future with the Proposed Project, the new VLTs would be installed in a renovated Grandstand, and would begin operating in 2010. However, the analyses in this attachment, which focus on the street system providing access to the project site and parking conditions in the area, examine conditions in 2011 when full demand for the VLTs would likely materialize. This study essentially updates a 2004 traffic study conducted for the installation of VLTs at the Aqueduct Racetrack. Existing 2009 conditions on the street system and parking facilities serving the racetrack are described, as are future conditions in the year 2011 without the Proposed Project (the "No Build" condition), and the increase in travel demand resulting from the addition of 4,500 VLTs. Conditions in the 2011 future with the Proposed Project (the "Build" condition) are then assessed. Travel demand data collected at Yonkers Raceway where over 5,300 VLTs have been installed since 2004 are utilized, along with traffic count and parking data collected in the vicinity of the project site in 2009.

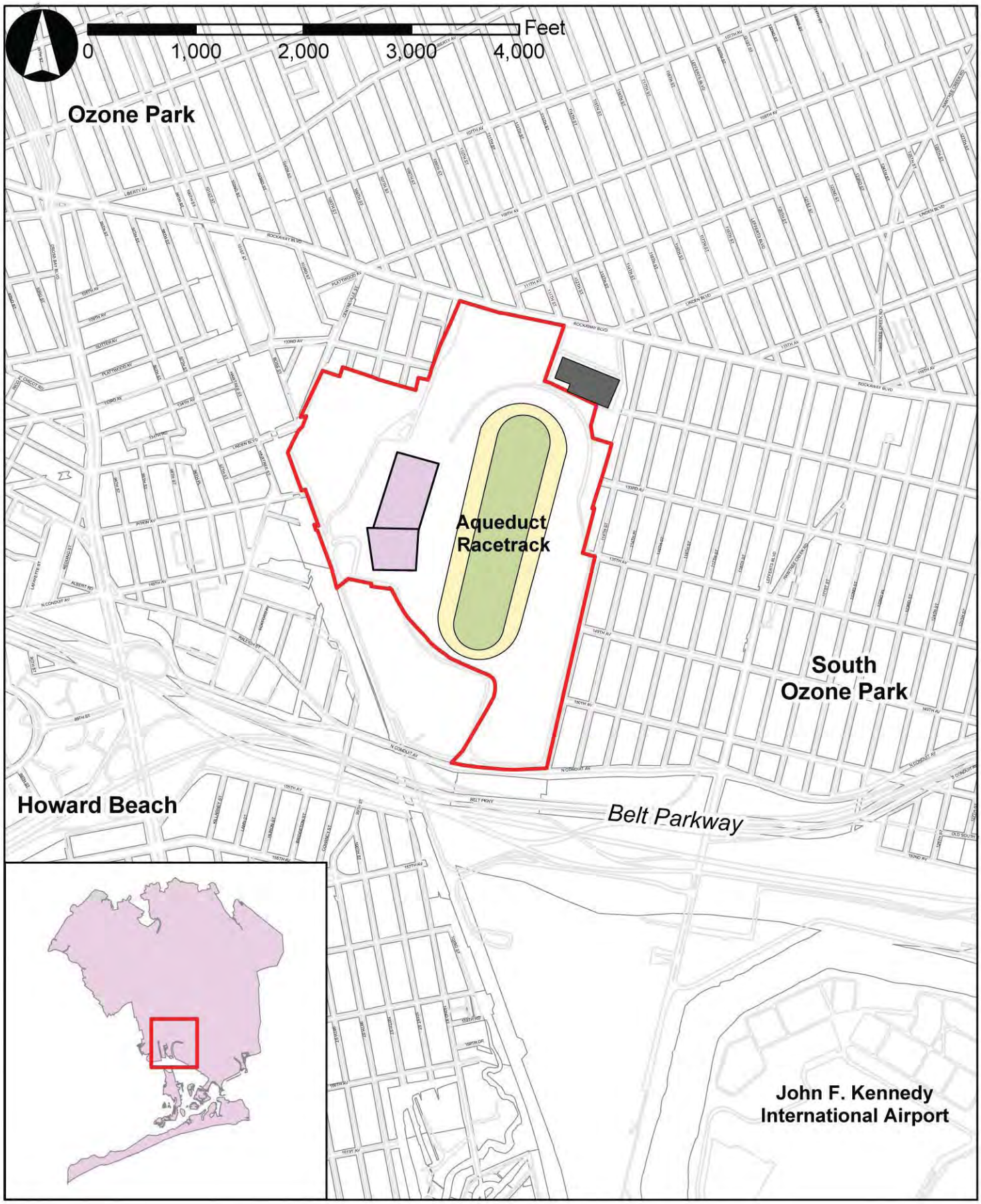
With implementation of the Proposed Project, Aqueduct Racetrack would continue to hold thoroughbred races from late October to May, and would remain open all year-round for the VLTs. The operating hours for the VLTs would be 10AM to 2AM, 365 days of the year. This attachment analyzes the new transportation demands by vehicle to the racetrack. The attachment focuses on transit and pedestrian conditions. There are four locations that are used to enter the Aqueduct Racetrack complex. The two main entrances are at the intersection of Rockaway Boulevard and 108th Street to the north and on North Conduit Avenue to the south. Two secondary entrances are located at Pitkin Avenue to the west and Racetrack Road, which extends southward over the Belt Parkway to Lefferts Boulevard. Figure 1 shows the site location and the surrounding roadway system. On-site, it is expected that the main gaming room entry would be on the west side of the Grandstand and on-site circulation would be modified accordingly to accommodate the new entry. In addition, a potential new garage may be constructed, if warranted, by the future operator. Off-site improvements would be made to three of the intersections in the area as part of the Proposed Project. Two of these intersection improvements would be located along Rockaway Boulevard at the Aqueduct Entrance/108th Street and at 113th Street. The other intersection that would be improved is located at Cross Bay Boulevard and Pitkin Avenue.

B. OVERVIEW OF 2004 AND 2009 STUDIES

As noted above, this study essentially updates a 2004 traffic study conducted for the installation of VLTs at the Aqueduct Racetrack. The findings of this traffic and parking study are similar to those of the 2004 assessment. However, the 2004 study was based on anticipated VLT traffic patterns while this 2009 study uses patterns derived from surveys of actual VLT usage at Yonkers Raceway. Based on these data, the peak weekday was found to be Friday and the peak weekend day was found to be Saturday. The updated patterns show heavier usage on these two days and lighter demand on the other five days of the week. In addition, the data show that VLT usage peaks at about 10 PM and that the heaviest arrival period for VLT travel demand is between 8:30 and 9:30 PM. Therefore, unlike in the 2004 study, this new peak hour was analyzed for both Friday and Saturday.

The 2004 study incorporated traffic improvement measures at a total of four intersections in order to accommodate project-generated demand. As discussed in more detail in Section E, below, the same types of improvements as incorporated in the 2004 study were found to remain effective based on 2009 data at three of the same four locations. The traffic improvements incorporated at one location in the 2004 study

Project Site



Legend

Project Site | Existing Grandstand and Clubhouse Building | Existing Home Depot

were found to be no longer warranted based on the 2009 assessment. As with the 2004 study, no significant adverse traffic impacts were identified in the 2009 study.

The estimated peak parking demand for VLT usage based on 2009 data was found to be higher than what was estimated in 2004. However, the more current forecast indicates that parking capacity at Aqueduct would reach a maximum of only 80 percent utilization, even assuming that no new garage is constructed by a potential VLT operator. As such, no parking impacts are anticipated to result from the Proposed Project.

C. EXISTING CONDITIONS

Data Collection and Existing Traffic Volumes

The 2009 existing peak hour traffic volumes in the study area were based on intersection turning movement counts conducted on Wednesday April 1st, Thursday April 2nd, Friday April 3rd, and Saturday April 4th, 2009. Counts were conducted during the midday, PM and early evening periods when new arriving and departing trips associated with the VLTs are expected to peak. The manual counts were conducted along Rockaway Boulevard at three intersections -- 108th Street, 111th Street and 113th Street. (A Home Depot is located between 111th Street and 113th Street, with an entrance at both of those streets on Rockaway Boulevard.) Manual counts were also conducted at Pitkin Avenue and Cross Bay Boulevard and at the south entrance to the Aqueduct Racetrack on North Conduit Avenue, which is an unsignalized intersection. These intersections were selected as they are expected to be traversed by concentrations of the new traffic that would be generated by the proposed VLTs. It should be noted that during the counts on Saturday April 4th, 2009, Aqueduct Racetrack had a substantially higher than average number of Saturday visitors due to the running of the Wood Memorial, NYRA's premier race for three-year-olds and a step to the Kentucky Derby. Also of note is that a flea market which operates in late Spring every Tuesday, Saturday and Sunday in Parking Lot A (off Rockaway Boulevard), was not yet in operation during the 2009 count program. Therefore, traffic generated by the flea market is not reflected in the base traffic networks. Use of these 2009 traffic networks without the demand from the flea market is appropriate as the flea market is not expected to operate during racing days once VLT operation commences.

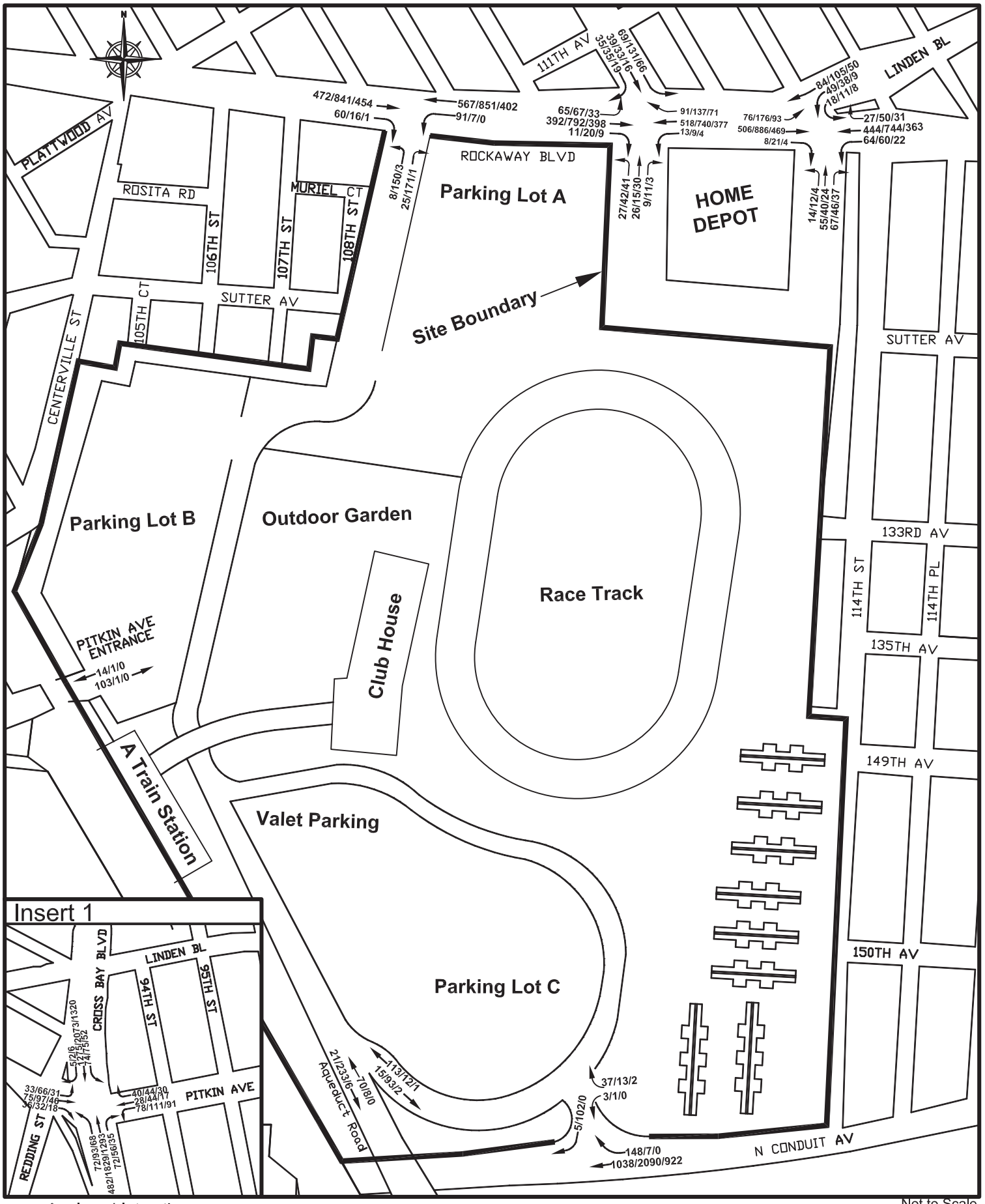
As discussed in more detail in Section D, below, gaming demand typically peaks in the evenings on Saturday. However, during the racing season (the analysis season) there are overlapping traffic and parking demands from gaming uses and the arriving racetrack patrons in the 12-1 PM period, and again from 5:30 PM to 6:30 PM on Saturdays, when most racetrack patrons depart after the last race. As such, this updated traffic study analyzes six peak hours -- 12-1 PM (midday), 5-6 PM and 8:30-9:30 PM (early evening) on a Friday, and the 12-1 PM, 5:30-6:30 PM and 8:30-9:30 PM three peak hours on a Saturday. As also discussed in more detail in Section D, below, Friday is by far the heaviest weekday for gaming demand. There is little variation in racetrack demand among weekdays, except that the racetrack is not typically open on Mondays or Tuesdays. Therefore, the weekday traffic analysis examines conditions on a typical Friday.

Figure 2 shows existing 2009 traffic volumes at study area intersections for the three weekday peak hours and Figure 3 shows the existing volumes for the three Saturday peak hours. Figures 2 and 3 also show the vehicles that entered and exited at Racetrack Road, the employee/trainer entrance via 114th Street and at Pitkin Avenue.

Aqueduct Racetrack Video Lottery Terminals

Figure 2

2009 Existing Weekday (Friday) Traffic Volumes



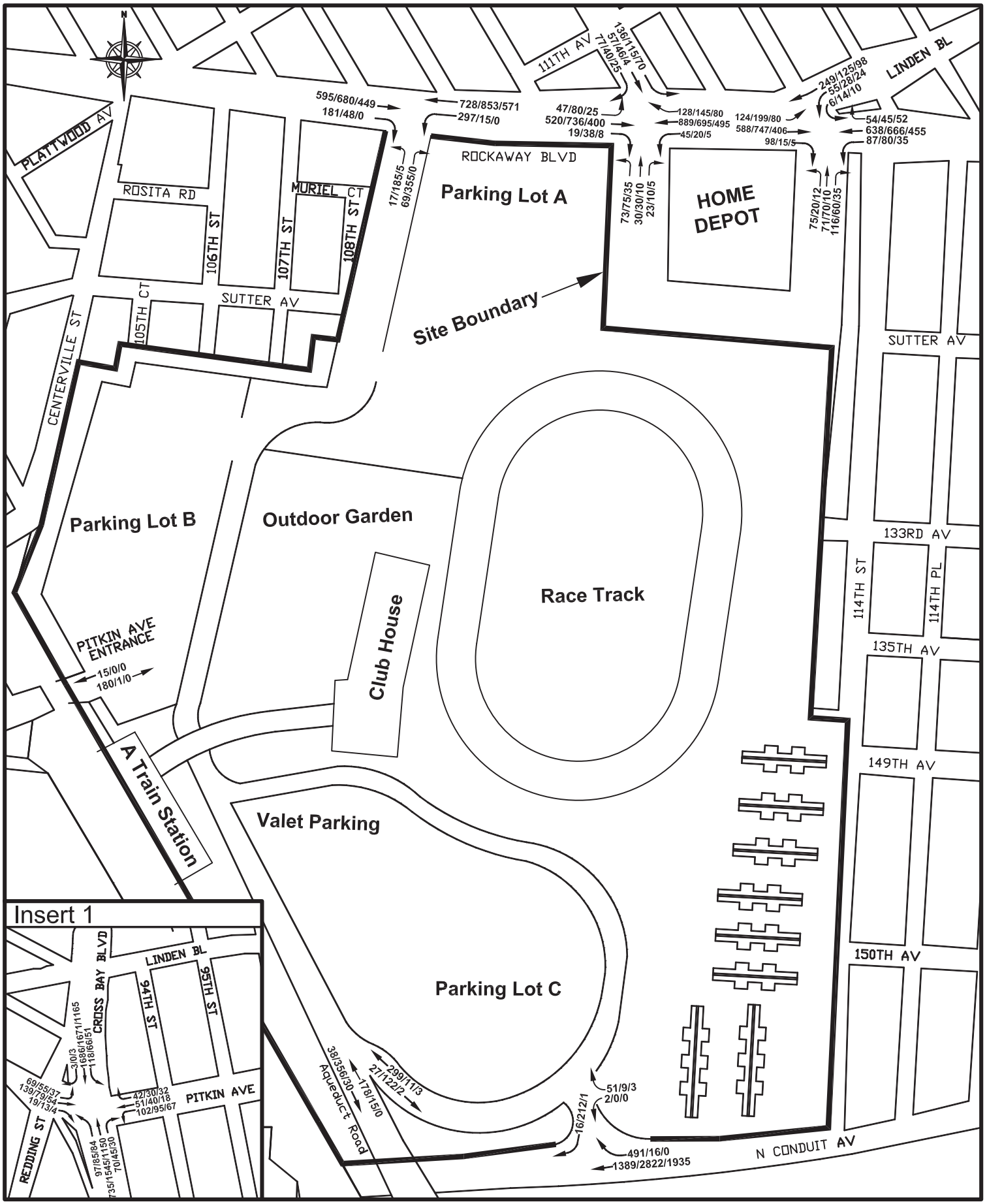
- Analyzed Interstions XX/XX/XX - MD/PM/EVE

Not to Scale

Aqueduct Racetrack Video Lottery Terminals

Figure 3

2009 Existing Saturday Traffic Volumes



- Analyzed Interstions XX/XX/XX - MD/PM/EVE

Not to Scale

Data on physical and operational characteristics of the street network, including signal timings, were obtained from field surveys conducted during April 2009. Official signal timings have been obtained from NYCDOT and are utilized in this analysis.

Street Network

The study area for the traffic analysis concentrates on the principal access/egress corridors along Rockaway Boulevard and North Conduit Avenue. In the study area, Rockaway Boulevard extends from Woodhaven Boulevard to the Van Wyck Expressway, while North Conduit Avenue extends from Lefferts Boulevard to Cross Bay Boulevard. Both racetrack entrances on North Conduit Avenue and at Racetrack Road provide access to the Belt (Shore) Parkway. The study area analyzed herein includes the local street system immediately to the north and west of Aqueduct. The study area is primarily residential, with neighborhood commercial and institutional uses fronting the major roadways. The regional highway/arterial system serving this area includes the Van Wyck Expressway to the east, the Belt Parkway to the south and Cross Bay Boulevard via north/south Conduit Avenue to the west. Cross Bay Boulevard becomes Woodhaven Boulevard north of Rockaway Boulevard. The Van Wyck Expressway (I-678), is a six- to eight-lane north-south freeway with major interchanges to the Whitestone Expressway, the Grand Central Parkway, the Long Island Expressway and the Belt Parkway. Woodhaven Boulevard/Cross Bay Boulevard, an arterial with six-lanes plus service roads, is a north-south connector with access to Queens Boulevard, the Jackie Robinson Parkway and Atlantic Avenue. The Belt Parkway has six travel lanes and traverses east-west along the south shore of Brooklyn and Queens. Interchanges with Cross Bay Boulevard and Lefferts Boulevard provide access to the project site.

The street network within the study area consists of both local streets and arterials. Rockaway Boulevard, the principal two-way feeder roadway for the north side of Aqueduct, extends from Nassau County to the east to Atlantic Avenue to the west and has interchanges with both the Van Wyck Expressway and the Belt Parkway east of the site. In the study area, Rockaway Boulevard has two travel lanes in each direction plus dedicated left-turn lanes at each key intersection. All major intersections along Rockaway Boulevard are signalized. There is parking along both curbs, with meters located on portions of the north side of the street. The Q7 and Q37 bus routes traverse Rockaway Boulevard adjacent to Aqueduct. Vehicles traveling south on Woodhaven Boulevard and Liberty Avenue, and vehicles traveling south on the Van-Wyck Expressway typically use the Rockaway Boulevard entrance for access into the project site.

North Conduit Avenue operates one-way westbound and includes four lanes with no parking. It acts as the service road for the Belt Parkway. Vehicles traveling west on the Belt Parkway or north on the Van-Wyck Expressway typically use the North Conduit Avenue entrance to access the project site. The B15 bus route traverses North (and South) Conduit Avenue.

The racetrack's Pitkin Avenue entrance is mainly used by vehicles traveling on Cross Bay Boulevard/Woodhaven Boulevard and eastbound on the Belt Parkway. The Q11 bus route runs along Pitkin Avenue just west of Aqueduct. The Racetrack Road entrance was originally built as an access road across the Belt Parkway to additional parking lots on Lefferts Boulevard. Racetrack Road has access to the Belt Parkway via Lefferts Boulevard.

Racetrack traffic is distributed among all four access points, and therefore is disbursed among several different roadways. Based on 2009 field survey data, the Rockaway Boulevard entrance is the most heavily utilized with about one-third (35 percent) of racetrack demand. These trips are generally divided almost equally between vehicles en route to and from the east and to and from the west. Approximately

30 percent of vehicle trips were found to use North Conduit Avenue, 20 percent use Racetrack Road and 15 percent use Pitkin Avenue.

Capacity Analysis Methodology

Capacity analyses for the study area were conducted using the methodology from the *Highway Capacity Manual 2000* (HCM), and Version 5.3 of the HCS+ software. Different procedures are used for signalized and unsignalized intersections due to the differences in driver interactions, and therefore capacity, at the two types of intersections.

Information required for signalized intersections includes: volumes on each approach, signal timings, peak hour factors (PHFs), percentage of heavy vehicles, basic roadway geometrics including number and width of lanes, curbside parking usage, and various other physical and operational characteristics. The HCM methodology provides the volume-to-capacity (v/c) ratio, average vehicle delay and level of service (LOS) for each signalized intersection approach.

The v/c ratio represents the ratio of traffic volume on an approach to its traffic carrying capacity. At a v/c ratio of 1.0 the intersection lane group operates at or over capacity, generally with severe traffic flow congestion, stop-and-start conditions and extensive vehicle queuing and delay. A value of 0.5 indicates that half of the available capacity is being used and traffic flows are generally acceptable. The HCM methodology also expresses quality of flow at signalized intersections in terms of level of service, based on the average delay encountered by vehicles along each intersection approach. As shown in Table 1, levels of service range from A, with very low delay (10 seconds or less per vehicle), to F, representing unacceptably long delays (more than 80 seconds per vehicle). Levels of service A, B, and C generally represent favorable to fair levels of traffic flow. The influence of congestion becomes noticeable at LOS D, LOS E is considered to be the limit of acceptable delay, and LOS F is unacceptable to most drivers. In this traffic study, a signalized lane group operating at LOS E or F or a v/c ratio of 0.90 or greater indicates congested conditions.

Unsignalized intersections are analyzed based on the use of “gaps” in the major traffic stream by vehicles crossing through or turning into that stream. It is generally assumed that traffic on a major street (i.e., the flow with the right of way) is not affected by minor street flows, but left turns from the major street are affected by oncoming major street traffic flow. The traffic flows on minor streets are affected by all conflicting movements. Key data required to analyze the unsignalized intersections include geometric factors, any nearby signalized intersections, and volumes, and this method expresses quality of flow in terms v/c ratio, delay and level of service for each approach. Table 1 shows the LOS/delay relationship for signalized and unsignalized intersections using the HCM methodology.

2009 Existing Traffic Conditions

Table 2 shows the results of the updated capacity analyses for the five analyzed intersections within the study area, with corresponding v/c ratios, delays and levels of service for each movement in each analyzed peak hour. The results include both weekday (Friday) and Saturday conditions for each analysis period. The table also highlights those movements with LOS E or F or a v/c ratio pf 0.90 or greater. Both of these levels indicate potential congestion. As shown in Table 2, two signalized intersections within the study area presently experience congestion in at least one peak period on Friday, while four signalized intersections are congested in one or more Saturday peak hours. These are discussed in more detail below.

Table 1

Intersection Levels of Service Criteria

	Average Delay Per Vehicle (seconds)	
Level of Service	Signalized Intersection	Unsignalized Intersection
A	10.0 or less	10.0 or less
B	10.1 to 20.0	10.1 to 15.0
C	20.1 to 35.0	15.1 to 25.0
D	35.1 to 55.0	25.1 to 35.0
E	55.1 to 80.0	35.1 to 50.0
F	greater than 80.0	greater than 50.0
Source: *2000 Highway Capacity Manual*		

Table 2 shows that on Fridays, the southbound movement on 111th Street at Rockaway Boulevard is congested in the PM peak hour with LOS E conditions. At the Cross Bay Boulevard/Pitkin Avenue intersection, the westbound approach is congested in the PM with LOS F conditions, as is the southbound through/right movement which also operates at LOS F. The northbound through/right movement is congested in the PM with a V/C ratio of 0.96 (LOS D). There are no congested movements at any analyzed intersection on Friday in either the midday or evening peak hours.

Table 2 shows that on Saturdays, the westbound left-turn on Rockaway Boulevard at 108th Street is congested in the midday peak hour with LOS F at this entry to the project site. At Rockaway Boulevard/111th Street, the southbound approach operates at LOS E in both the midday and PM peak hours, while the southbound right-turn at Rockaway Boulevard/Linden Place operates at LOS F in the midday. At the intersection of Pitkin Street and Cross Bay Boulevard, the westbound Pitkin Avenue movement operates at LOS F in the midday and LOS E in the PM, while the northbound through-right movement operates with a v/c ratio of 0.90 (LOS D) in the midday. As shown in Table 2, there are no congested movements in the Saturday evening peak hour.

Parking

Table 3 shows attendance data for the Aqueduct Racetrack for the years 1970 through 2006. As shown in the table, in 1970 an average of over 30,000 patrons visited the track on a typical race day. In the 1970s, Linden Boulevard was closed between Rockaway Boulevard and 108th Street and the amount of parking was expanded to help accommodate this level of demand. However, as shown in Table 3, attendance has steadily declined in the 36-year period following 1970. In 2006, an average of 2,867 patrons visited the track on a typical race day, less than 10 percent of the 1970 attendance level. This low level of attendance remains under current 2009 conditions.

There are currently three parking lots at the Aqueduct Racetrack -- Lot A located next to Rockaway Boulevard, Lot B located adjacent to the Pitkin Avenue entrance, and Lot C located near North Conduit Avenue and Racetrack Road. Based on existing surveys provided by NYRA, Parking Lot A has an area of

Table 2

2009 Existing Conditions

Level of Service at Analyed Intersctions

Weekday (Friday)

Signalized Intersection	Lane Group	2009 Existing MD Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2009 Existing PM Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2009 Existing EVE Peak Hour V/C Ratio	Delay (sec/veh)	LOS
Rockaway Blvd (E-W) @	EB-TR	0.30	10.7	B	0.31	10.8	B	0.30	11.6	B
Aqueduct Driveway/108th St (N-S)	WB-L	0.23	11.2	B	0.03	8.8	A	0.00	9.3	A
	WB-T	0.32	11.0	B	0.48	12.9	B	0.26	11.3	B
	NB-L	0.02	30.3	C	0.32	34.7	C	0.01	19.4	B
	NB-LR	0.05	30.8	C	0.31	35.2	D	0.00	19.3	B
	NB-R	0.05	30.8	C	0.28	34.7	C	0.00	19.4	B
Rockaway Blvd (E-W) @	EB-L	0.26	20.0	B	0.33	19.4	B	0.11	13.6	B
111th St (N-S)	EB-TR	0.29	18.6	B	0.36	16.0	B	0.32	15.1	B
	WB-L	0.03	11.1	B	0.02	9.9	A	0.01	8.0	A
	WB-TR	0.37	12.5	B	0.49	11.2	B	0.26	8.4	A
	NB-LTR	0.09	29.7	C						
	NB-DefL				0.20	36.7	D	0.16	25.6	C
	NB-TR				0.08	34.1	C	0.08	24.3	C
	SB-LTR	0.40	35.9	D	0.79	64.7	E *	0.33	28.4	C
Rockaway Blvd (E-W) @	EB-L	0.19	10.6	B	0.66	26.4	C	0.23	9.4	A
Linden Blvd (N-S)	EB-TR	0.29	10.7	B	0.51	13.3	B	0.30	9.2	A
	WB-L	0.18	10.5	B	0.27	12.8	B	0.06	7.7	A
	WB-TR	0.27	10.5	B	0.46	12.6	B	0.23	8.6	A
	NB-LTR	0.21	32.7	C	0.16	32.0	C	0.10	23.7	C
	SB-LT	0.16	32.3	C	0.11	31.6	C	0.04	23.2	C
	SB-R	0.29	35.3	D	0.38	37.6	D	0.17	25.0	C
Pitkin St (E-W) @	EB-LTR	0.21	34.2	C	0.33	35.9	D	0.15	33.3	C
Cross Bay Blvd (N-S)	WB-LTR	0.57	46.7	D	0.93	113.1	F *	0.53	44.1	D
	NB-L	0.23	23.5	C	0.31	43.0	D	0.23	25.0	C
	NB-TR	0.83	31.7	C	0.96	46.9	D *	0.73	27.6	C
	SB-L	0.26	34.0	C	0.26	38.0	D	0.17	25.8	C
	SB-TR	0.64	25.3	C	1.02	88.6	F *	0.63	25.0	C
North Conduit Ave (E-W) @ Aqueduct Racetrack (SB) (Unsignalized)	NB-R	0.01	9.1	A	0.16	10.2	B	0.00	9.1	A

Saturday

Signalized Intersection	Lane Group	2009 Existing MD Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2009 Existing PM Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2009 Existing EVE Peak Hour V/C Ratio	Delay (sec/veh)	LOS
Rockaway Blvd (E-W) @	EB-TR	0.43	12.2	B	0.26	10.3	B	0.26	11.3	B
Aqueduct Driveway/108th St (N-S)	WB-L	1.03	162.6	F *	0.05	9.0	A	0.00	9.3	A
	WB-T	0.38	11.6	B	0.47	12.8	B	0.37	12.3	B
	NB-L	0.04	30.5	C	0.39	36.1	D	0.01	19.4	B
	NB-LR	0.14	32.3	C	0.62	44.3	D	0.00	19.4	B
	NB-R	0.14	32.3	C	0.59	43.0	D	0.00	19.3	B
Rockaway Blvd (E-W) @	EB-L	0.32	23.5	C	0.36	20.1	C	0.09	13.4	B
111th St (N-S)	EB-TR	0.37	19.6	B	0.33	15.7	B	0.29	14.7	B
	WB-L	0.10	13.8	B	0.05	9.8	A	0.01	7.7	A
	WB-TR	0.56	15.1	B	0.46	10.8	B	0.34	9.0	A
	NB-LTR	0.33	35.3	D	0.39	41.5	D	0.14	25.3	C
	SB-LTR	0.13	30.5	C	0.11	34.5	C	0.04	23.9	C
	SB-LTR	0.83	61.0	E *	0.79	62.8	E *	0.36	29.2	C
Rockaway Blvd (E-W) @	EB-L	0.38	14.2	B	0.65	24.3	C	0.20	9.3	A
Linden Blvd (N-S)	EB-TR	0.39	11.7	B	0.40	11.8	B	0.23	8.6	A
	WB-L	0.27	12.2	B	0.29	12.6	B	0.08	7.9	A
	WB-TR	0.36	11.4	B	0.40	11.8	B	0.30	9.2	A
	NB-LTR	0.49	37.6	D	0.24	33.1	C	0.09	23.6	C
	SB-LT	0.14	31.9	C	0.11	31.6	C	0.09	23.7	C
	SB-R	0.92	90.6	F *	0.48	40.3	D	0.36	28.3	C
Pitkin St (E-W) @	EB-LTR	0.35	36.2	D	0.22	34.3	C	0.14	33.2	C
Cross Bay Blvd (N-S)	WB-LTR	0.99	156.5	F *	0.81	69.4	E *	0.49	42.3	D
	NB-L	0.27	33.3	C	0.23	32.8	C	0.24	22.6	C
	NB-TR	0.90	35.6	D *	0.77	28.8	C	0.59	24.3	C
	SB-L	0.32	36.6	D	0.19	28.2	C	0.15	19.0	B
	SB-TR	0.76	28.4	C	0.81	30.0	C	0.57	23.7	C
North Conduit Ave (E-W) @ Aqueduct Racetrack (SB) (Unsignalized)	NB-R	0.02	9.8	A	0.34	12.0	B	0.00	9.3	A

NOTES:
EB-Eastbound, WB-Westbound, NB-Northbound, SB-Southbound
L-Left, T-Through, R-Right, DfL-Analysis considers a Defacto Left Lane on this approach .
V/C Ratio - Volume to Capacity Ratio, SEC/VEH - Seconds per vehicle
LOS - Level of service
* -Denotes Congested Location in the 2009 Existing Condition
Analysis is based on the 2000 Highway Capacity Manual Methodology (HCS 2000+ 5.3).

Table 3
Average Daily Attendance at Aqueduct Racetrack
1970 – 2006

Year	Racing Days	Total Attendance	Daily Average
1970	138	4,168,795	30,209
1971	147	4,046,129	27,529
1972	136	3,052,979	22,448
1973	162	3,517,967	21,716
1974	167	3,427,862	20,526
1975	122	2,380,679	19,514
1976	176	3,178,837	18,062
1977	176	2,642,756	15,016
1978	163	2,662,276	16,407
1979	182	2,747,688	14,628
1980	186	2,465,167	14,773
1981	171	2,610,986	14,416
1982	179	2,412,762	14,587
1983	178	2,200,687	13,555
1984	167	2,028,433	13,178
1985	165	1,984,894	12,294
1986	170	1,745,961	11,676
1987	160	1,734,336	10,912
1988	171	1,684,303	10,142
1989	168	1,591,679	10,026
1990	162	1,488,373	9,825
1991	167	1,454,865	8,912
1992	165	1,304,373	8,817
1993	160	1,063,998	8,152
1994	151	902,597	7,046
1995	127	761,683	7,107
1996	130	806,880	5,859
1997	146	754,866	5,527
1998	135	755,460	5,592
1999	137	681,263	5,514
2000	134	638,303	5,084
2001	134	638,303	4,763
2001	134	632,036	4,717
2002	132	674,391	5,109
2003	121	548,239	4,531
2004	123	461,305	3,750
2005	121	371,012	3,066
2006	129	369,874	2,867

Source: *2007 Media Guide,* NYRA, Inc.

997,000 square feet. Parking Lot B has an area of 887,000 square feet while Lot C has an area of 1,137,000 square feet. Parking Lot C is a city owned lot leased to the Port Authority of New York and New Jersey. While the lots are currently used by some racetrack patrons, the analysis assumes that Lots A and B with a total area of 1,884,000 are available for parking at the project site. It is estimated that the total number of general parking spaces that would be possible in the two parking areas combined would total approximately 6,280. According to the Zoning Resolution, Aqueduct Racetrack is in a C8-1 zoning district, which requires one parking space for every eight persons of rated capacity. Therefore, 6,280 parking spaces are sufficient for a total capacity of approximately 50,000 people. All parking at Aqueduct Racetrack is currently free, and the NYRA operates an internal bus shuttle between the parking lots and the Grandstand/Clubhouse entrances.

Data on the number of vehicles entering and exiting the parking facilities at the racetrack were collected at the four entrances from 11 AM to 9:30 PM on Friday April 3rd and Saturday April 4th, 2009. Table 4 illustrates the estimated hourly parking accumulation on Friday and Saturday (with the Saturday data reflecting demand during the Wood Memorial). On both days the first race commenced at about 1PM. As shown in the table, the greatest parking demand occurred on Saturday between 3 PM and 4 PM when an estimated 2,731 cars were present at the track.

D. FUTURE CONDITIONS WITHOUT THE PROPOSED PROJECT (NO BUILD)

Traffic

Transportation conditions in the future without the proposed project (the No Build condition) were estimated by assuming a one percent per year background growth rate to account for increased travel demand from small development projects in the area, increased car ownership and other long-term trends. No large developments to be completed and operational during the 2009 through 2011 period were identified in the immediate area of the project site.

Figures 4 and 5 show the expected future No Build peak hour traffic volumes within the study area in each of the analyzed peak hours. Table 5 shows the results of the capacity analyses for the No Build Condition and compares these results with exiting 2009 conditions. As shown in Table 5, no movements at any analyzed intersection will become newly congested in any peak hour in the No Build condition, however, increased demand will worsen existing congestion at intersections in the study area.

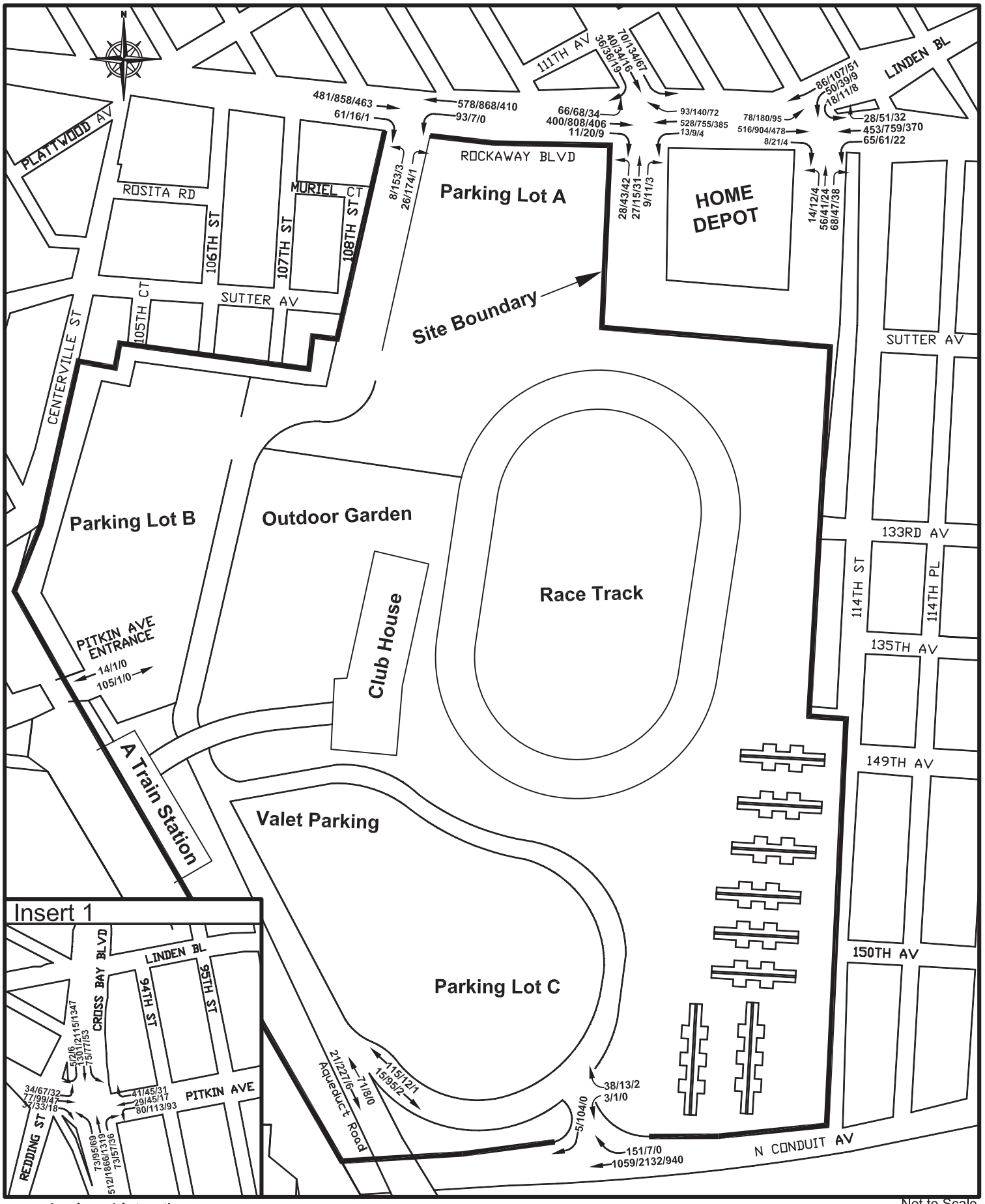
Parking

Under 2011 No Build Conditions, it is expected that there would be no measurable increase in parking demand at the project site. Typical weekday demand would be very low, and peak demand would occur on Saturday during signature pre-Kentucky Derby races, such as the Wood Memorial documented in the above analysis.

Aqueduct Racetrack Video Lottery Terminals

Figure 4

2011 No-Build Weekday (Friday) Traffic Volumes



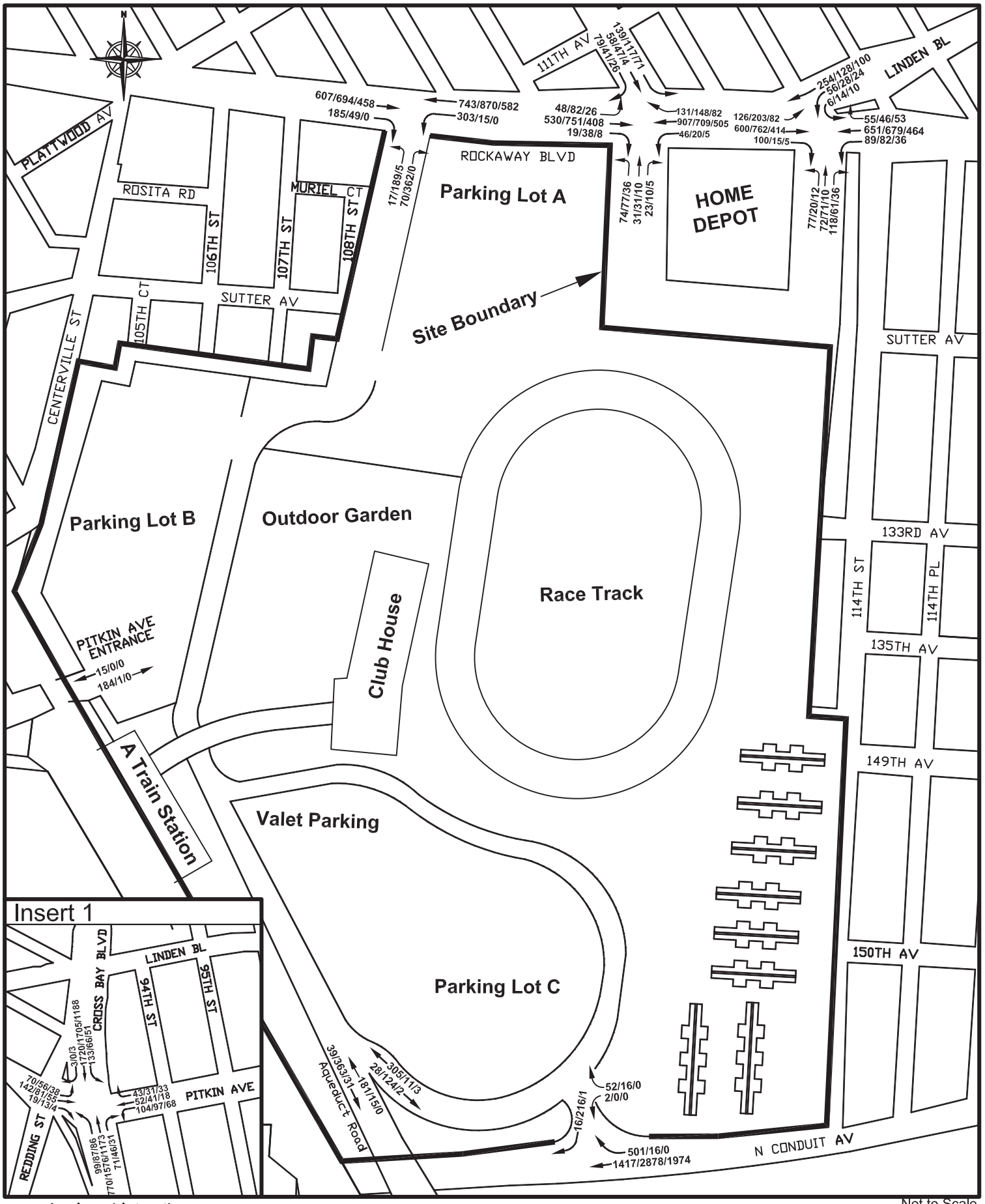
- Analyzed Interstions XX/XX/XX - MD/PM/EVE

Not to Scale

Aqueduct Racetrack Video Lottery Terminals

Figure 5

2011 No-Build Saturday Traffic Volumes



- Analyzed Interstions XX/XX/XX - MD/PM/EVE

Not to Scale

Table 4
Existing Hourly Parking Accumulation at Aqueduct Racetrack

	Friday, April 3, 2009			Saturday, April 4, 2009		
Time	**In**	**Out**	**Accumulation**	**In**	**Out**	**Accumulation**
7-8 AM	0	0	0	0	0	0
8-9	35	0	35	35	0	35
9-10	85	8	112	112	28	119
10-11	200	20	292	116	65	170
11-12	283	50	525	646	158	658
12-01 PM	499	77	947	1,277	162	1,773
01-02	212	118	1,041	729	185	2,317
02-03	138	144	1,035	557	205	2,669
03-04	116	180	971	339	277	2,731
04-05	78	286	763	210	309	2,632
05-06	37	580	220	93	510	2,215
06-07	34	128	126	89	1,672	632
07-08	11	104	33	30	573	89
08-09	4	22	15	11	78	22
09-10 PM	4	14	5	2	16	8

Source: PHA survey data collected at Aqueduct Racetrack in April 2009.

Table 5
2011 No-Build Conditions
Level of Service at Analyed Intersctions

Weekday (Friday)

Signalized Intersection	Lane Group	2009 Existing MD Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 No-Build MD Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2009 Existing PM Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 No-Build PM Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2009 Existing EVE Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 No-Build EVE Peak Hour V/C Ratio	Delay (sec/veh)	LOS
Rockaway Blvd (E-W) @	EB-TR	0.30	10.7	B	0.30	10.8	B	0.31	10.8	B	0.32	10.8	B	0.30	11.6	B	0.31	11.7	B
Aqueduct Driveway/108th St (N-S)	WB-L	0.23	11.2	B	0.24	11.3	B	0.03	8.8	A	0.03	8.8	A	0.00	9.3	A	0.00	9.3	A
	WB-T	0.32	11.0	B	0.33	11.1	B	0.48	12.9	B	0.49	13.0	B	0.26	11.3	B	0.27	11.3	B
	NB-L	0.02	30.3	C	0.02	30.3	C	0.32	34.7	C	0.32	34.8	C	0.01	19.4	B	0.01	19.4	B
	NB-LR	0.05	30.8	C	0.05	30.8	C	0.31	35.2	D	0.32	35.3	D	0.00	19.3	B	0.00	19.3	B
	NB-R	0.05	30.8	C	0.05	30.9	C	0.28	34.7	C	0.29	34.8	C	0.00	19.4	B	0.00	19.4	B
Rockaway Blvd (E-W) @	EB-L	0.26	20.0	B	0.26	20.2	C	0.33	19.4	B	0.34	19.9	B	0.11	13.6	B	0.11	13.6	B
111th St (N-S)	EB-TR	0.29	18.6	B	0.30	18.6	B	0.36	16.0	B	0.36	16.1	B	0.32	15.1	B	0.33	15.2	B
	WB-L	0.03	11.1	B	0.03	11.2	B	0.02	9.9	A	0.02	10.0	A	0.01	8.0	A	0.01	8.1	A
	WB-TR	0.37	12.5	B	0.38	12.6	B	0.49	11.2	B	0.50	11.4	B	0.26	8.4	A	0.26	8.4	A
	NB-LTR	0.09	29.7	C	0.09	29.7	C												A
	NB-DefL							0.20	36.7	D	0.21	36.8	D	0.16	25.6	C	0.16	25.7	C
	NB-TR							0.08	34.1	C	0.08	34.1	C	0.08	24.3	C	0.09	24.4	C
	SB-LTR	0.40	35.9	D	0.41	36.1	D	0.79	64.7	E *	0.81	66.8	E *	0.33	28.4	C	0.34	28.5	C
Rockaway Blvd (E-W) @	EB-L	0.19	10.6	B	0.20	10.7	B	0.66	26.4	C	0.70	29.3	C	0.23	9.4	A	0.24	9.5	A
Linden Blvd (N-S)	EB-TR	0.29	10.7	B	0.30	10.8	B	0.51	13.3	B	0.52	13.5	B	0.30	9.2	A	0.31	9.3	A
	WB-L	0.18	10.5	B	0.18	10.5	B	0.27	12.8	B	0.28	13.2	B	0.06	7.7	A	0.06	7.7	A
	WB-TR	0.27	10.5	B	0.28	10.6	B	0.46	12.6	B	0.47	12.7	B	0.23	8.6	A	0.23	8.6	A
	NB-LTR	0.21	32.7	C	0.21	32.7	C	0.16	32.0	C	0.16	32.1	C	0.10	23.7	C	0.10	23.7	C
	SB-LT	0.16	32.3	C	0.16	32.3	C	0.11	31.6	C	0.12	31.6	C	0.04	23.2	C	0.04	23.2	C
	SB-R	0.29	35.3	D	0.30	35.5	D	0.38	37.6	D	0.39	37.7	D	0.17	25.0	C	0.17	25.0	C
Pitkin St (E-W) @	EB-LTR	0.21	34.2	C	0.22	34.3	C	0.33	35.9	D	0.34	36.1	D	0.15	33.3	C	0.15	33.3	C
Cross Bay Blvd (N-S)	WB-LTR	0.57	46.7	D	0.60	48.1	D	0.93	113.1	F *	0.96	130.3	F *	0.53	44.1	D	0.55	44.8	D
	NB-L	0.23	23.5	C	0.23	24.4	C	0.31	43.0	D	0.32	43.7	D	0.23	25.0	C	0.23	26.1	C
	NB-TR	0.83	31.7	C	0.85	32.6	C	0.96	46.9	D *	0.98	53.5	D *	0.73	27.6	C	0.75	28.1	C
	SB-L	0.26	34.0	C	0.26	34.8	C	0.26	38.0	D	0.27	38.8	D	0.17	25.8	C	0.17	26.9	C
	SB-TR	0.64	25.3	C	0.66	25.6	C	1.02	88.6	F *	1.04	117.3	F *	0.63	25.0	C	0.64	25.3	C
North Conduit Ave (E-W) @ Aqueduct Racetrack (SB) (Unsignalized)	NB-R	0.01	9.1	A	0.01	9.1	A	0.16	14.2	B	0.16	10.2	B	0.00	9.1	A	0.00	9.6	A

Saturday

Signalized Intersection	Lane Group	2009 Existing MD Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 No-Build MD Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2009 Existing PM Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 No-Build PM Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2009 Existing EVE Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 No-Build EVE Peak Hour V/C Ratio	Delay (sec/veh)	LOS
Rockaway Blvd (E-W) @	EB-TR	0.43	12.2	B	0.44	12.4	B	0.26	10.3	B	0.26	10.3	B	0.26	11.3	B	0.27	11.3	B
Aqueduct Driveway/108th St (N-S)	WB-L	1.03	162.6	F *	1.08	223.2	F *	0.05	9.0	A	0.05	9.0	A	0.00	9.3	A	0.00	9.3	A
	WB-T	0.38	11.6	B	0.39	11.7	B	0.47	12.8	B	0.48	12.9	B	0.37	12.3	B	0.37	12.3	B
	NB-L	0.04	30.5	C	0.04	30.5	C	0.39	36.1	D	0.40	36.3	D	0.01	19.4	B	0.01	19.4	B
	NB-LR	0.14	32.3	C	0.14	32.3	C	0.62	44.3	D	0.64	44.9	D	0.00	19.4	B	0.00	19.4	B
	NB-R	0.14	32.3	C	0.14	32.3	C	0.59	43.0	D	0.60	43.4	D	0.00	19.3	B	0.00	19.3	B
Rockaway Blvd (E-W) @	EB-L	0.32	23.5	C	0.34	24.4	C	0.36	20.1	C	0.38	20.8	C	0.09	13.4	B	0.10	13.5	B
111th St (N-S)	EB-TR	0.37	19.6	B	0.38	19.7	B	0.33	15.7	B	0.33	15.7	B	0.29	14.7	B	0.29	14.7	B
	WB-L	0.10	13.8	B	0.10	14.0	B	0.05	9.8	A	0.05	10.0	A	0.01	7.7	A	0.01	6.6	A
	WB-TR	0.56	15.1	B	0.57	15.3	B	0.46	10.8	B	0.47	10.9	B	0.34	9.0	A	0.34	9.1	A
	NB-LTR	0.33	35.3	D	0.34	35.4	D	0.39	41.5	D	0.40	41.8	D	0.14	25.3	C	0.14	25.4	C
	SB-LTR	0.13	30.5	C	0.14	30.6	C	0.11	34.5	C	0.12	34.6	C	0.04	23.9	C	0.04	23.9	C
	SB-LTR	0.83	61.0	E *	0.85	64.3	E *	0.79	62.8	E *	0.80	65.1	E *	0.36	29.2	C	0.37	29.4	C
Rockaway Blvd (E-W) @	EB-L	0.38	14.2	B	0.39	14.5	B	0.65	24.3	C	0.68	26.1	C	0.20	9.3	A	0.21	9.4	A
Linden Blvd (N-S)	EB-TR	0.39	11.7	B	0.40	11.8	B	0.4	11.8	B	0.41	11.9	B	0.23	8.6	A	0.23	8.7	A
	WB-L	0.27	12.2	B	0.28	12.4	B	0.29	12.6	B	0.30	12.8	B	0.08	7.9	A	0.08	7.9	A
	WB-TR	0.36	11.4	B	0.37	11.5	B	0.4	11.8	B	0.41	11.9	B	0.30	9.2	A	0.30	9.2	A
	NB-LTR	0.49	37.6	D	0.50	37.8	D	0.24	33.1	C	0.25	33.2	C	0.09	23.6	C	0.10	23.7	C
	SB-LT	0.14	31.9	C	0.14	32.0	C	0.11	31.6	C	0.11	31.6	C	0.09	23.7	C	0.09	23.7	C
	SB-R	0.92	90.6	F *	0.93	98.2	F *	0.48	40.3	D	0.49	40.7	D	0.36	28.3	C	0.37	28.5	C
Pitkin St (E-W) @	EB-LTR	0.35	36.2	D	0.36	36.4	D	0.22	34.3	C	0.23	34.4	C	0.14	33.2	C	0.14	33.2	C
Cross Bay Blvd (N-S)	WB-LTR	0.99	156.5	F *	1.02	189.6	F *	0.81	69.4	E *	0.84	74.0	E *	0.49	42.3	D	0.38	39.1	D
	NB-L	0.27	33.3	C	0.33	38.1	D	0.23	32.8	C	0.28	37.6	C	0.24	22.6	C	0.25	23.6	C
	NB-TR	0.90	35.6	D *	0.91	37.4	D *	0.77	28.8	C	0.79	29.4	C	0.59	24.3	C	0.61	24.5	C
	SB-L	0.32	36.6	D	0.38	41.6	D	0.19	28.2	C	0.22	32.5	C	0.15	19.0	B	0.15	19.6	B
	SB-TR	0.76	28.4	C	0.78	29.0	C	0.81	30.0	C	0.82	30.7	C	0.57	23.7	C	0.58	23.9	C
North Conduit Ave (E-W) @ Aqueduct Racetrack (SB) (Unsignalized)	NB-R	0.02	9.8	A	0.02	9.8	A	0.34	12.0	B	0.35	12.2	B	0.00	9.3	A	0.00	9.3	A

NOTES:
EB-Eastbound, WB-Westbound, NB-Northbound, SB-Southbound
L-Left, T-Through, R-Right, DfL-Analysis considers a Defacto Left Lane on this approach .
V/C Ratio - Volume to Capacity Ratio, SEC/VEH - Seconds per vehicle
LOS - Level of service
* -Denotes Congested Location in the 2011 No-Build Condition
Analysis is based on the 2000 Highway Capacity Manual Methodology (HCS 2000+ 5.3).

E. PROBABLE IMPACTS OF THE PROPOSED PROJECT

Beginning in 2010, the New York State Lottery proposes to install 4,500 new video lottery terminals within the Aqueduct Racetrack Grandstand. Full utilization of these VLTs is expected to occur by 2011 (the traffic and parking analysis year). In the future with the Proposed Project, it is expected that a new entrance to the VLT floors would be created on the west side of the building (where the existing garden is located) to handle both pedestrian and vehicle drop-offs for valet parking. A new parking garage would also likely be installed in close proximity to this gaming entrance, along with other on-site circulation improvements. It is also expected that the Rockaway Boulevard entrance would be modified to remove the entrance booths, thereby forming a standard intersection at this entrance/exit. In addition, three intersections in the study area would be improved as part of the Proposed Project, and these traffic improvements are detailed below and are shown in Table 6. The three proposed improvements are essentially the same as those previously proposed in 2004 and coordinated with NYCDOT, while a fourth improvement proposed in 2004 at Rockaway Boulevard/111th Street was found to no longer be needed. All intersection improvements would be implemented by NYRA/NYS Lottery, or by the selected operator.

Rockaway Boulevard at Aqueduct Driveway/108th Street. At this location it is proposed to modify the intersection's signal plan to provide a new lagging westbound phase to facilitate the westbound left-turn movement into the project site. Table 6 shows the proposed signal timing plans for this intersection for the different weekday and weekend peak periods. In addition, it is proposed to formalize the racetrack exit driveway at this intersection to provide three northbound lanes with markings for left-turn, left-right, and right-turn lanes, each 11 feet in width. New left-turn signal heads would be added to the existing installation for the lagging westbound phase along with the intersection approach improvements on the project site.

Rockaway Boulevard at Linden Boulevard. It is proposed to modify the intersection's signalization to add an eastbound and westbound exclusive left-turn phase along with a concurrent southbound right-turn phase. Twelve seconds of signal time would be transferred to this new phase from the existing eastbound/westbound phase. Exclusive lanes already exist for both movements and no changes to the intersection's lane markings would be necessary. New left-turn and right-turn signal heads would be added to this intersection.

Cross Bay Boulevard at Pitkin Avenue. It is proposed to implement a no standing anytime regulation along the north curb of westbound Pitkin Avenue for approximately 100 feet approaching the intersection, and to re-stripe the approach to add an exclusive right-turn-only lane approaching Cross Bay Boulevard. As shown in Table 6, signal timing adjustments of up to three seconds are also proposed in the weekday PM and Saturday midday and evening peak periods.

Trip Generation

Table 7 shows the transportation planning assumptions used to estimate the new travel demand from the proposed addition of 4,500 video lottery terminals at Aqueduct Racetrack. It is expected that by 2011, a total of approximately 8.5 million patrons would visit the new VLT facility annually. The temporal and directional distribution patterns of VLT patrons incorporated in the demand forecast were developed from NYS Lottery data and field counts conducted at the existing VLT operation at Yonkers Raceway. Table 8 shows the typical daily pattern, while Table 9 shows the hourly accumulation pattern for on-site VLT users on a Friday and Saturday.

TABLE 6

TRAFFIC IMPROVEMENT MEASURES

Intersection	Peak Hour	Approach	Existing Signal Timing (Seconds) (1)		Proposed Signal Timing (Seconds) (1)						Proposed Improvement Measures
			Day	Eve	Fri MD	Fri PM	Fri Eve	SAT MD	SAT PM	SAT EVE	
Rockaway Boulevard (E-W)	All	EB/WB	80	54	69	69	43	62	59	41	Rockaway Boulevard EB/WB: -11/-18/-21/-13 sec. (Fri all times/SAT MD/SAT PM/SAT EVE.
Aqueduct Entrance (south side)		WB LT		...	11	11	11	21	15	13	Add lagging WB phase ; transfer 11/21/15/13 sec. to new WB phase Fri all times/SAT MD
		NB/SB	40	36	40	40	36	37	46	36	SAT PM/SAT EVE. Aqueduct Entrance NB/SB: -3 sec/ +6 sec in SAT MD/ SAT PM.
											Extend No Standing regulation on the south side of the eastbound approach from 1pm-7pm to 12pm - 7pm. Exit to be striped formally for 3 lanes (L,LR, R).
Rockaway Boulevard (E-W)	All	EB/WB	80	59	68	68	47	68	64	47	Transfer 12 sec. from EB/WB to EB/WB LT phase w/ SB RT (all periods) except /SAT PM
Linden Boulevard (north side)		NB/SB	40	31	40	40	31	40	40	31	Transfer 16 sec. from EB/WB to EB/WB LT phase w/ SB RT in SAT PM
Home Depot Entrnace (southside)		EB/WB LT; SB RT		...	12	12	12	12	16	12	Rockaway Boulevard EB/WB: -12 sec. in. all period/ -16 sec in SAT PM
Cross Bay Boulevard (N-S) @	All	EB/WB	38	38	38	36	38	35	38	40	Implement "No Standing Anytime" regulation on north side of WB approach on Pitkin Avenue for 100 feet from intersection to re-stripe the north side of the WB approach to
Pitkin Avenue (E-W)		NB/SB	63	63	63	65	63	63	63	61	include a right turn only lane
		NB/SB LT	19	19	19	19	19	22	19	19	Cross Bay Boulevard NBLT/SBLT: transfer +3 sec in SAT MD.
											Cross Bay Boulevard NB/SB: transfer +2 sec in WK PM; reduce -2 sec in Sat EVE
											Pitkin Avenue : transfer -2sec. / -3sec in WK PM/SAT MD; +2sec in Sat EVE

Notes:

(1) Signal timings shown indicate Green plus Yellow (including All Red) for each phase.

Table 7
Transporation Planning Assumptions

Number of Video Lottery Terminals	4500 VLTs	
Estimated New Annual Annual Visits :	8,330,000	(1)
Estimated New Friday Person Trips :	56,300	(2)
Estimated New Saturday Person Trips :	72,700	(2)

Peaking Characteristics: (3)

		Friday		Saturday
Midday Peak	(12PM-1PM)	4.8%	(12PM-1PM)	4.3%
PM Peak	(5PM-6PM)	6.5%	(5:30PM-6:30PM)	7.0%
Evening Peak	(8:30PM-9:30PM)	9.6%	(8:30PM-9:30PM)	9.7%
		In/Out (%/%)		In/Out (%/%)
		(69/31)		(79/21)
		(55/45)		(55/45)
		(64/36)		(55/45)

Mode Choice (4)

	Friday	Saturday
Auto	74.0%	74.0%
Taxi	1.0%	1.0%
Subway	9.0%	9.0%
Local Bus	11.0%	11.0%
Charter Bus	3.0%	3.0%
Walk/Bike	2.0%	2.0%
Total	100.0%	100.0%

Vehicle Occupancy (All Trips) (5)	Friday	Saturday	
Auto	2.00	2.00	persons/vehicle
Taxi	2.00	2.00	persons/vehicle
Charter Bus	35	35	persons/vehicle

NOTES:

(1) Based on data from Urban Systems , "Technical Memorandum: Recalculation of VLT Revenues at New York Race Tracks Based Upon Proposed Operating Assumptions". In addition, a 2% linked-trips factor is appplied to total daily persons trips to account for linked trips between racing and gaming patror

(2) Daily pattern based on 1st Quarter 2009 pattern at Yonkers Raceway.

(3) Traffic/Parking survey at Yonkers Raceway April 17th and April 18th 2009.

(4) PHA estimate based on counts at Aqueduct and Yonkers in April 2009, as well as secondary research. 3% charter bus is forecasted for this land use.

(5) Based on data collected at Aqueduct April 2009.

As shown in Table 8, Saturday would be the busiest day of the week with 22.7 percent of weekly demand, followed by Sunday and Friday, each with approximately 17.5 percent. VLT patronage would be lowest on Tuesdays with approximately 9.9 percent of weekly demand. As shown in Table 9, over the course of day, the heaviest utilization of VLTs would occur between 8PM and midnight, with about 30 percent of the daily demand on-site between 9 PM and 10 PM.

As shown in Table 7, the estimated daily person trips generated by the Proposed Project would total approximately 56,300 (in and out combined) on Fridays and 72,700 on Saturdays. As also noted in Table 7, a credit of two percent is assumed to account for linked trips associated with existing racetrack patrons who would also use the proposed VLTs, yielding a total net increment of approximately 8.3 million new VLT patrons annually.

Table 10 provides the estimated person trip and vehicle trip forecasts for the six analyzed peak hours. As shown in Table 10, as an example, there would be an increase of 1,024 vehicle trips in the Friday midday peak hour (702 in/322 out), 1,187 vehicle trips in the Saturday midday peak hour (929 in/258 out), and 2,654 vehicle trips in the Saturday evening peak hour (1,457 in/1,197 out) due to the new VLT operation. Subway trips during these peak hours would increase by 243 to 631, while local bus trips (not including trips by charter bus) would increase by 297 to 771 per hour, depending on the peak period.

Table 8
Daily Distribution of VLT Patrons

Day	Percent of Week
Monday	10.8%
Tuesday	9.9%
Wednesday	10.0%
Thursday	11.5%
Friday	17.6%
Saturday	22.7%
Sunday	17.5%
Total	100%

Source: NYS Lottery

Vehicular Traffic

The incremental traffic demands in the six analyzed peak hours were assigned to the surrounding streets and the various entrances into Aqueduct based on existing travel patterns at the project site. Figure 6 shows the assignment patterns assumed for each vehicle entrance. The highest number of vehicles (a total of 35 percent) are expected to utilize the Rockaway Boulevard/108th Street entrance. Approximately 30 percent would utilize the entrance on North Conduit Avenue, 20 percent would utilize the Racetrack Road entrance and 15 percent would utilize the Pitkin Avenue entrance. The project increment vehicle trips in each of the six analyzed peak hours are shown on Figures 7 (Friday) and Figure 8 (Saturday).

TABLE 9

Hourly Distribution of VLT Patron Demand

Firday				Saturday			
Time	In	Out	Accumulation	Time	In	Out	Accumulation
7-8 AM	0.7%	0.4%	0.3%	7-8 AM	0.3%	0.2%	0.0%
8-9	0.7%	0.4%	0.6%	8-9	0.4%	0.3%	0.1%
9-10	1.7%	0.5%	1.7%	9-10	0.9%	0.2%	0.8%
10-11	4.0%	1.7%	4.9%	10-11	4.4%	1.0%	4.3%
11-12	4.8%	2.3%	7.4%	11-12	4.2%	2.5%	7.5%
12-01	6.6%	3.0%	10.4%	12-01	6.8%	1.8%	11.0%
01-02	5.8%	4.0%	12.2%	01-02	6.0%	3.7%	13.2%
02-03	6.0%	4.3%	13.8%	02-03	6.4%	4.2%	15.3%
03-04	6.2%	5.2%	14.9%	03-04	6.8%	5.5%	16.6%
04-05	6.3%	6.0%	15.2%	04-05	6.6%	6.2%	17.0%
05-06	7.2%	5.9%	16.4%	05-06	7.8%	6.3%	18.5%
06-07	8.6%	5.4%	19.6%	06-07	9.9%	6.6%	21.8%
07-08	10.0%	6.0%	23.5%	07-08	9.1%	6.0%	24.9%
08-09	12.3%	6.9%	28.9%	08-09	10.6%	8.7%	26.5%
09-10	10.2%	8.8%	30.3%	09-10	11.2%	7.7%	30.3%
10-11	3.5%	6.0%	27.9%	10-11	3.0%	6.2%	27.1%
11-12	2.6%	6.8%	23.8%	11-12	2.8%	7.0%	23.0%
12-11	1.6%	6.2%	19.2%	12-11	1.8%	5.9%	18.9%
1-2	0.6%	10.0%	9.8%	1-2	0.6%	9.5%	10.0%
2-3 + AM	0.5%	10.3%	0.0%	2-3 + AM	0.1%	10.4%	0.0%
	100.0%	100.0%			100.0%	100.0%	

Source : PHA counts at Yonkers Raceway Friday 4/17/2009 and Saturday 4/18/2009

Table 10

Transportation Demand Forecast

Person Trips

Friday MD Peak Hour (12pm-1pm) Person Trips

	In	Out	Total
Auto	1,380	620	2,000
Taxi/Limo	19	8	27
Subway	168	75	243
Local Bus	205	92	297
Charter Bus	56	25	81
Walk/Other	37	17	54
Total	**1,865**	**837**	**2,702**

Friday PM Peak Hour (5pm-6pm) Person Trips

	In	Out	Total
Auto	1,489	1,219	2,708
Taxi/Limo	20	16	36
Subway	181	148	329
Local Bus	221	181	402
Charter Bus	60	49	109
Walk/Other	40	33	73
Total	**2,011**	**1,646**	**3,657**

Friday EVE Peak Hour (8:30pm-9:30pm) Person Trips

	In	Out	Total
Auto	2,560	1,440	4,000
Taxi/Limo	35	19	54
Subway	311	175	486
Local Bus	380	214	594
Charter Bus	104	58	162
Walk/Other	69	39	108
Total	**3,459**	**1,945**	**5,404**

Saturday MD Peak Hour (12pm-1pm) Person Trips

	In	Out	Total
Auto	1,828	486	2,314
Taxi/Limo	25	7	32
Subway	222	59	281
Local Bus	272	72	344
Charter Bus	74	20	94
Walk/Other	49	13	62
Total	**2,470**	**657**	**3,127**

Saturday PM Peak Hour (5:30pm-6:30pm) Person Trips

	In	Out	Total
Auto	2,071	1,695	3,766
Taxi/Limo	28	23	51
Subway	252	206	458
Local Bus	308	252	560
Charter Bus	84	69	153
Walk/Other	56	46	102
Total	**2,799**	**2,291**	**5,090**

Saturday EVE Peak Hour (8:30pm-9:30pm) Person Trips

	In	Out	Total
Auto	2,855	2,336	5,191
Taxi/Limo	39	32	71
Subway	347	284	631
Local Bus	424	347	771
Charter Bus	116	95	211
Walk/Other	77	63	140
Total	**3,858**	**3,157**	**7,015**

Vehicle Trips

Friday MD Peak Hour Vehicle Trips

	In	Out	Total
Auto	690	310	1,000
Taxi Balanced	10	10	20
Charter Bus	2	2	4
Total	**702**	**322**	**1,024**

Friday PM Peak Hour Vehicle Trips

	In	Out	Total
Auto	745	610	1,355
Taxi Balanced	13	13	26
Charter Bus	2	2	4
Total	**760**	**625**	**1,385**

Friday EVE Peak Hour Vehicle Trips

	In	Out	Total
Auto	1,280	720	2,000
Taxi Balanced	18	18	36
Charter Bus	3	3	6
Total	**1,301**	**741**	**2,042**

Saturday MD Peak Hour Vehicle Trips

	In	Out	Total
Auto	914	243	1,157
Taxi Balanced	13	13	26
Charter Bus	2	2	4
Total	**929**	**258**	**1,187**

Saturday PM Peak Hour Vehicle Trips

	In	Out	Total
Auto	1,036	848	1,884
Taxi Balanced	19	19	38
Charter Bus	2	2	3
Total	**1,057**	**868**	**1,925**

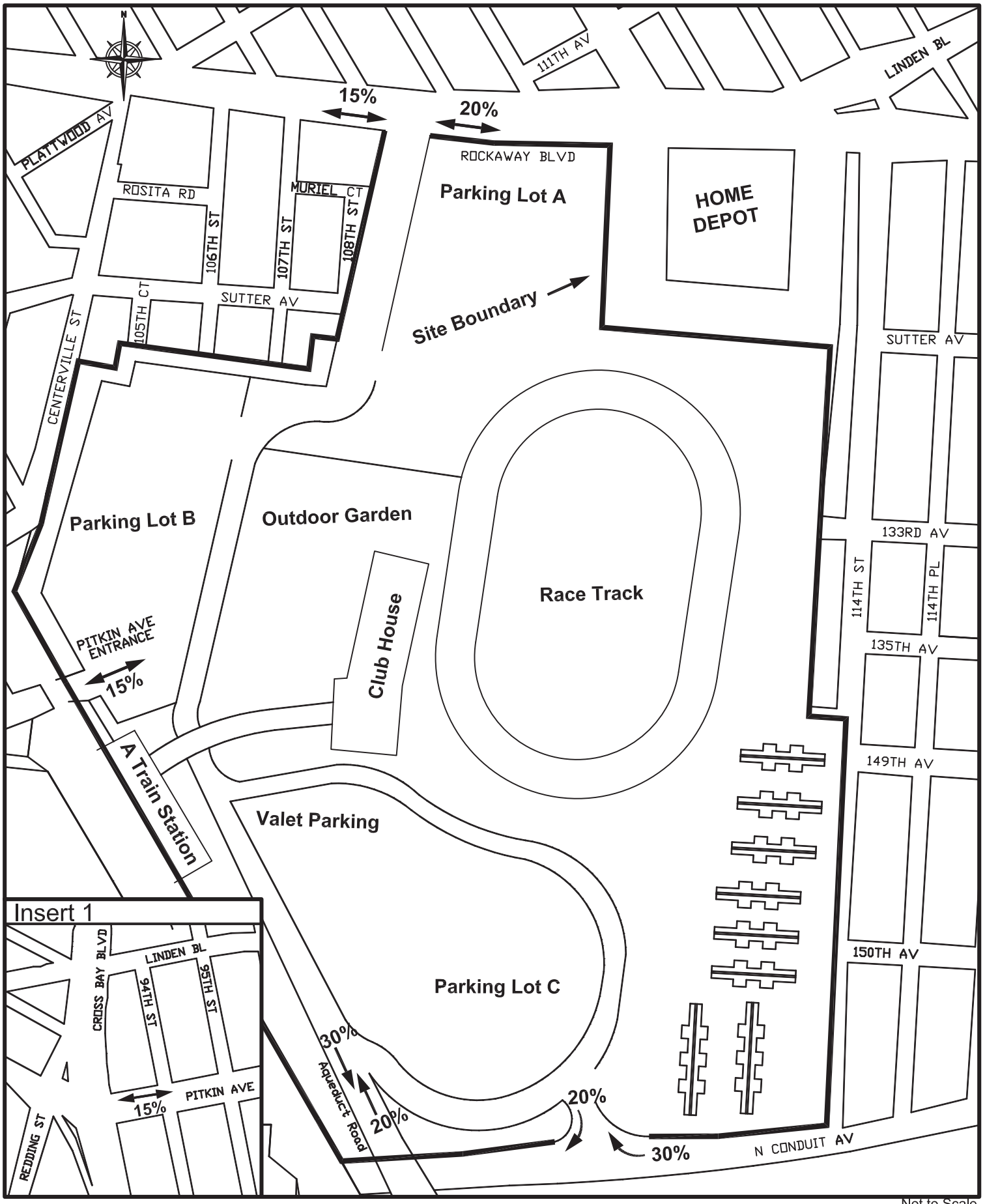
Saturday EVE Peak Hour Vehicle Trips

	In	Out	Total
Auto	1,428	1,168	2,596
Taxi Balanced	26	26	52
Charter Bus	3	3	6
Total	**1,457**	**1,197**	**2,654**

Aqueduct Racetrack Video Lottery Terminals

Figure 6

Traffic Increment Assignment Pattern



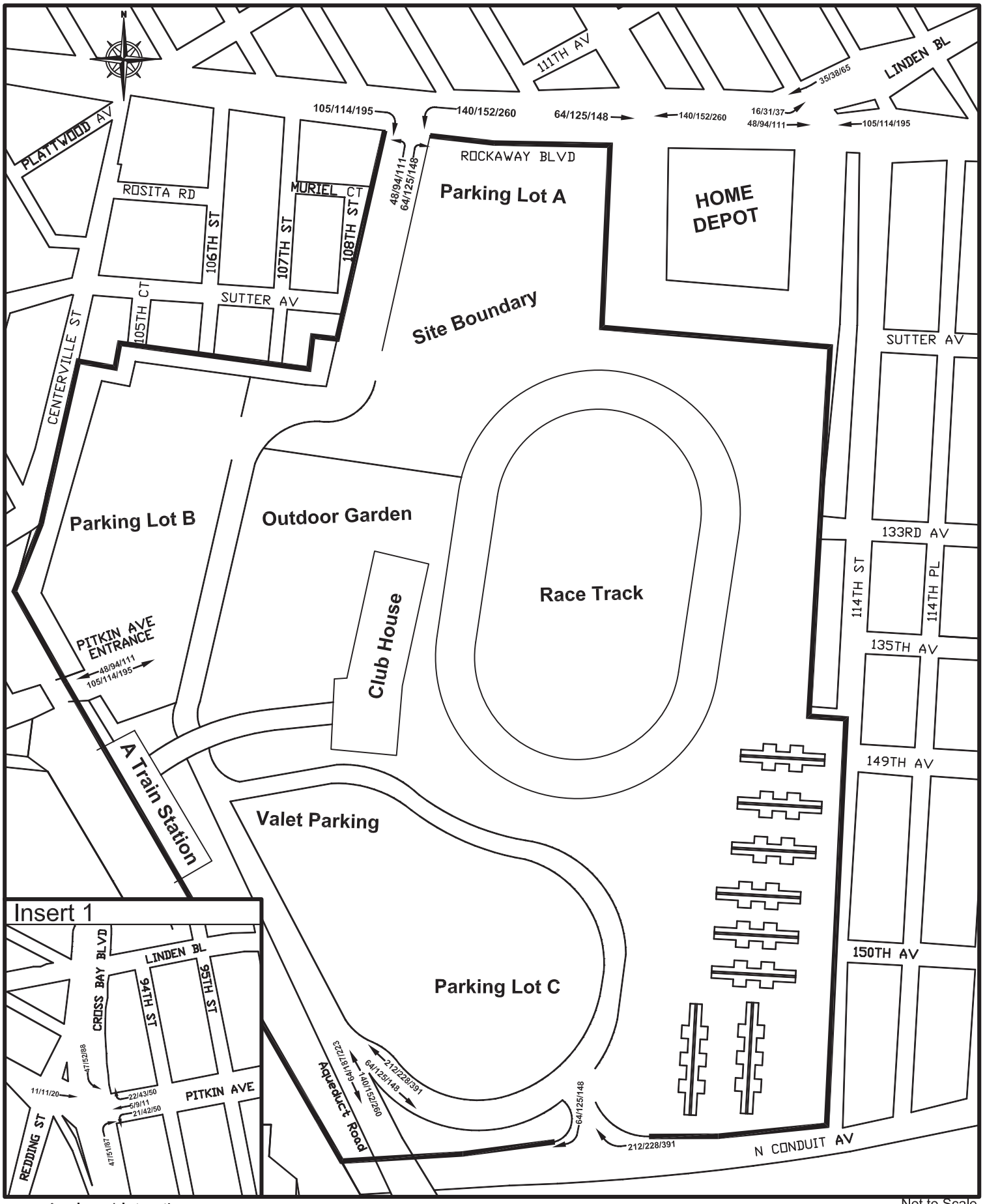
- Directional Assignment

Not to Scale

Aqueduct Racetrack Video Lottery Terminals

Figure 7

Project Increment Weekday (Friday) Traffic Volumes



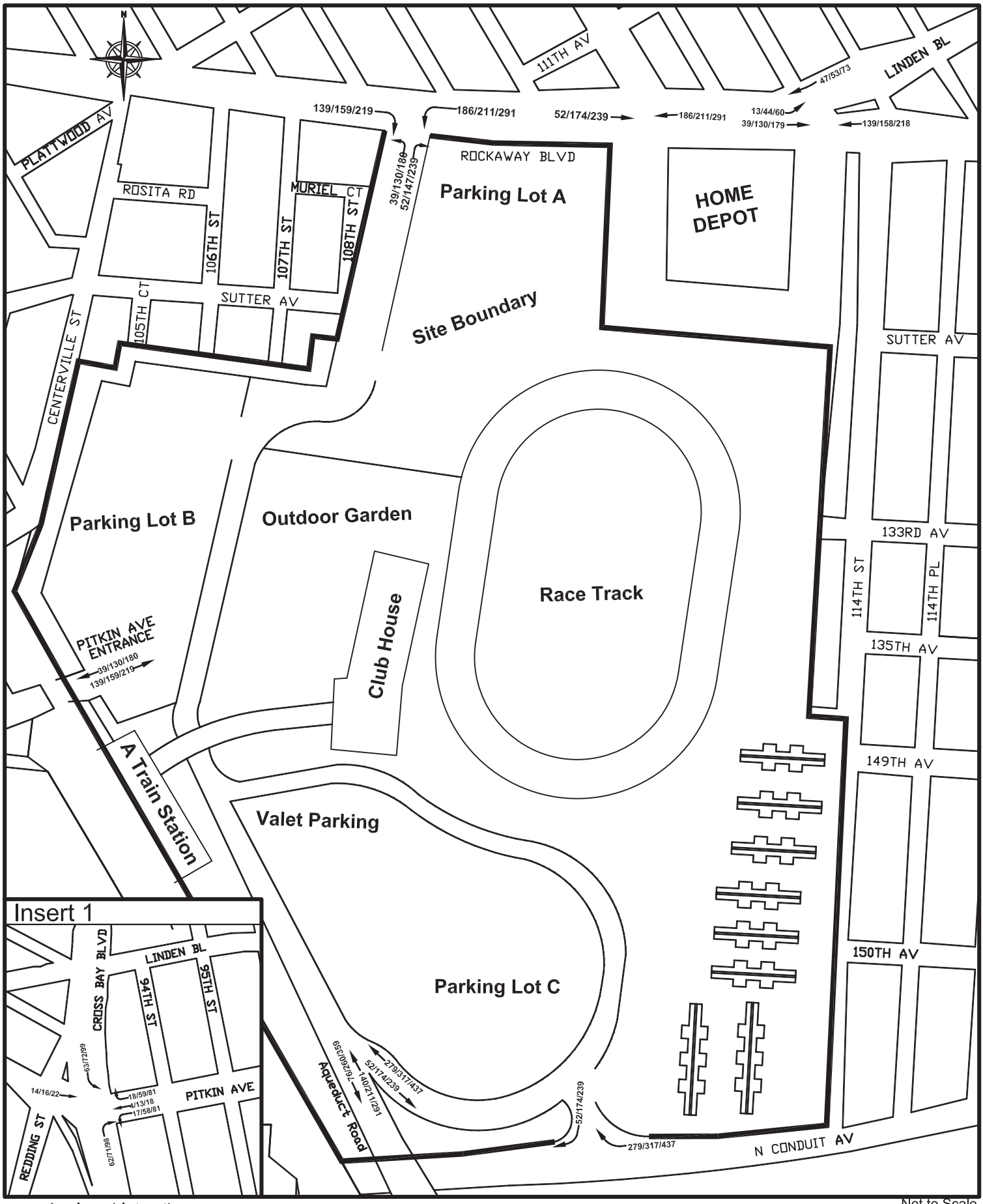
- Analyzed Interstions XX/XX/XX - MD/PM/EVE

Not to Scale

Aqueduct Racetrack Video Lottery Terminals

Figure 8

Project Increment Saturday Traffic Volumes



- Analyzed Interstions XX/XX/XX - MD/PM/EVE

Not to Scale

The Build condition traffic volumes, which combine the No Build volumes with the project increment, are shown on Figures 9 and 10, for Friday and Saturday, respectively. Table 11 shows the resulting capacity analysis comparison between the No Build condition and the Build condition for reach analysis period.

The following impact criteria were used to identify significant adverse impacts: if levels of service deteriorate from LOS A, B or C in the No Build condition to marginally unacceptable mid-LOS D or unacceptable LOS E or F in the Build condition, then a significant traffic impact has occurred. For No Build LOS D, an increase of five or more seconds in a lane group in the Build condition should be considered significant if the Build delay exceeds mid-LOS D. For No Build LOS E, an increase in delay of four seconds should be considered significant. For No Build LOS F, three seconds of delay should be considered significant, however, if the No Build LOS F condition already has delays in excess of 120 seconds, an increase of 1.0 second in delay should be considered significant, unless the Proposed Project would generate fewer than five vehicles through that intersection in the peak hour (signalized intersections) or fewer than five passenger car equivalents (PCE) in the peak hour along the critical approach (unsignalized intersections). In addition, for unsignalized intersections, for the minor street approach to generate a significant impact, 90 PCEs must be identified in the Build condition in any peak hour.

As shown in Table 11, based on these impact criteria, the new traffic generated by the introduction of VLTs at Aqueduct Racetrack would not result in significant adverse traffic impacts at any signalized intersection analyzed for this study during any of the six peak hours. The unsignalized intersection of North Conduit Avenue and the Aqueduct entrance driveway would also not be impacted by project traffic in any peak hour.

Parking

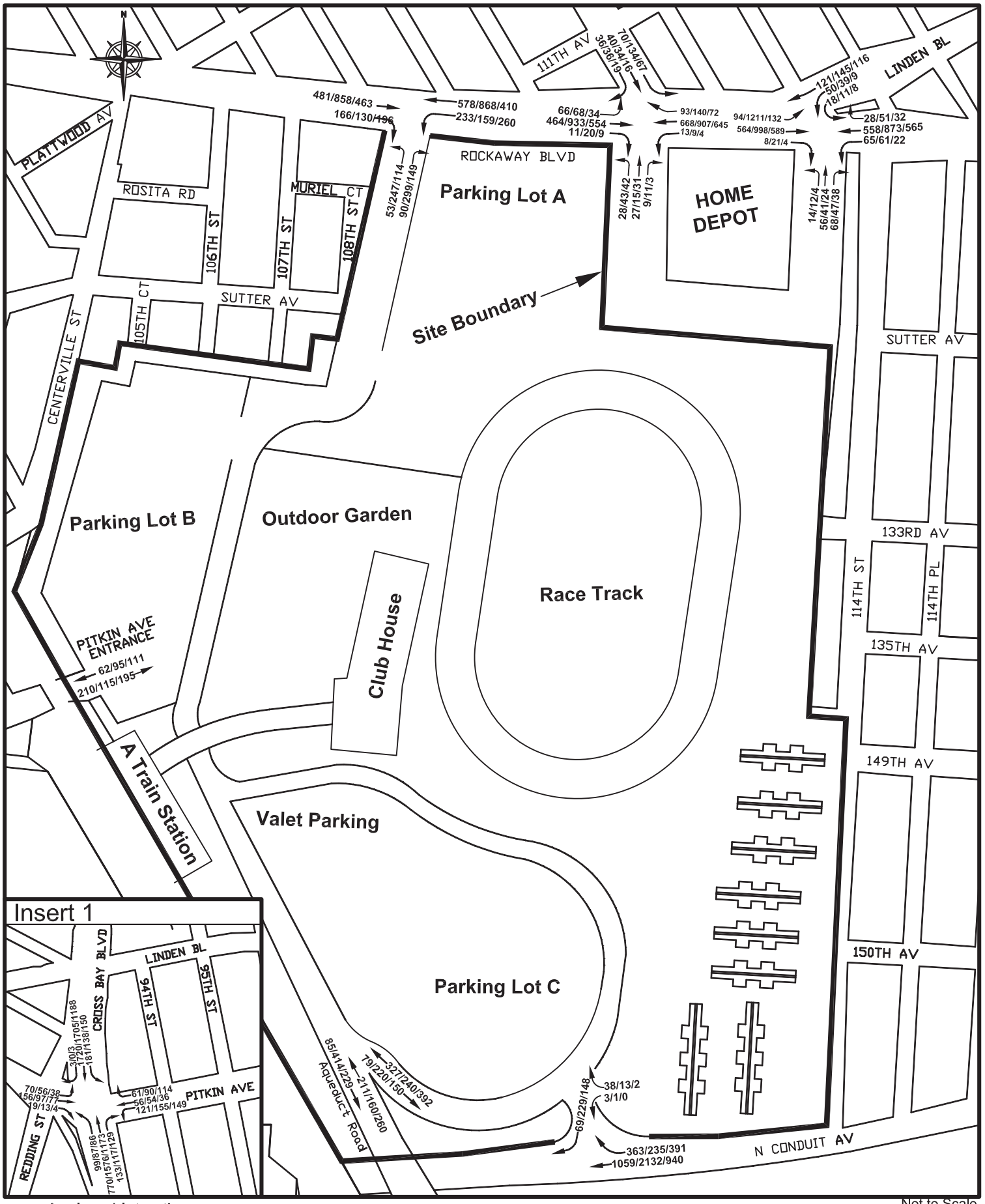
The proposed installation of 4,500 video lottery terminals at Aqueduct Racetrack would create its highest demand on Saturday evening. As noted previously, gaming operations occur between 10 AM and 2AM. As such, it is expected that parking demand from VLT patrons would commence earlier than typical racetrack demand (the first race is typically at 1 PM) and would peak in the evening substantially after the race day has ended. Table 12 shows the projected new Friday and Saturday parking demands. As shown in Table 12, new incremental demand from VLT operations would peak at about 4,112 spaces at 10 PM on Saturday. However, the overall peak parking demand at the project site would occur during afternoon periods when VLT and racetrack demand would overlap, and would total approximately 5,000 spaces between 3 PM and 4 PM on a peak racing Saturday (refer to Table 4 for peak racetrack parking demand). No other period would reach this level of demand. As noted earlier, Aqueduct racetrack presently has approximately 6,280 parking spaces in Lots A and B. (Lot C is not included in the analysis although field observations indicate that some racing fans also park in that lot.) Based on this capacity, future parking demand at Aqueduct Racetrack with the VLT installation could be fully accommodated by the present capacity available in Lots A and B, with utilization peaking at about 80 percent of capacity between 3 PM and 4 PM on a peak Saturday.

As noted previously, it is possible that the operator selected for the proposed VLT installation may decide to construct a parking garage of undetermined size to provide increased capacity in closer proximity to the entrance to the gaming facility. While the construction of such a garage might require the displacement of some existing parking spaces, total on-site parking capacity would increase, thereby reducing the overall peak utilization rate from the 80 percent noted above.

Aqueduct Racetrack Video Lottery Terminals

Figure 9

2011 Build Weekday Traffic Volumes



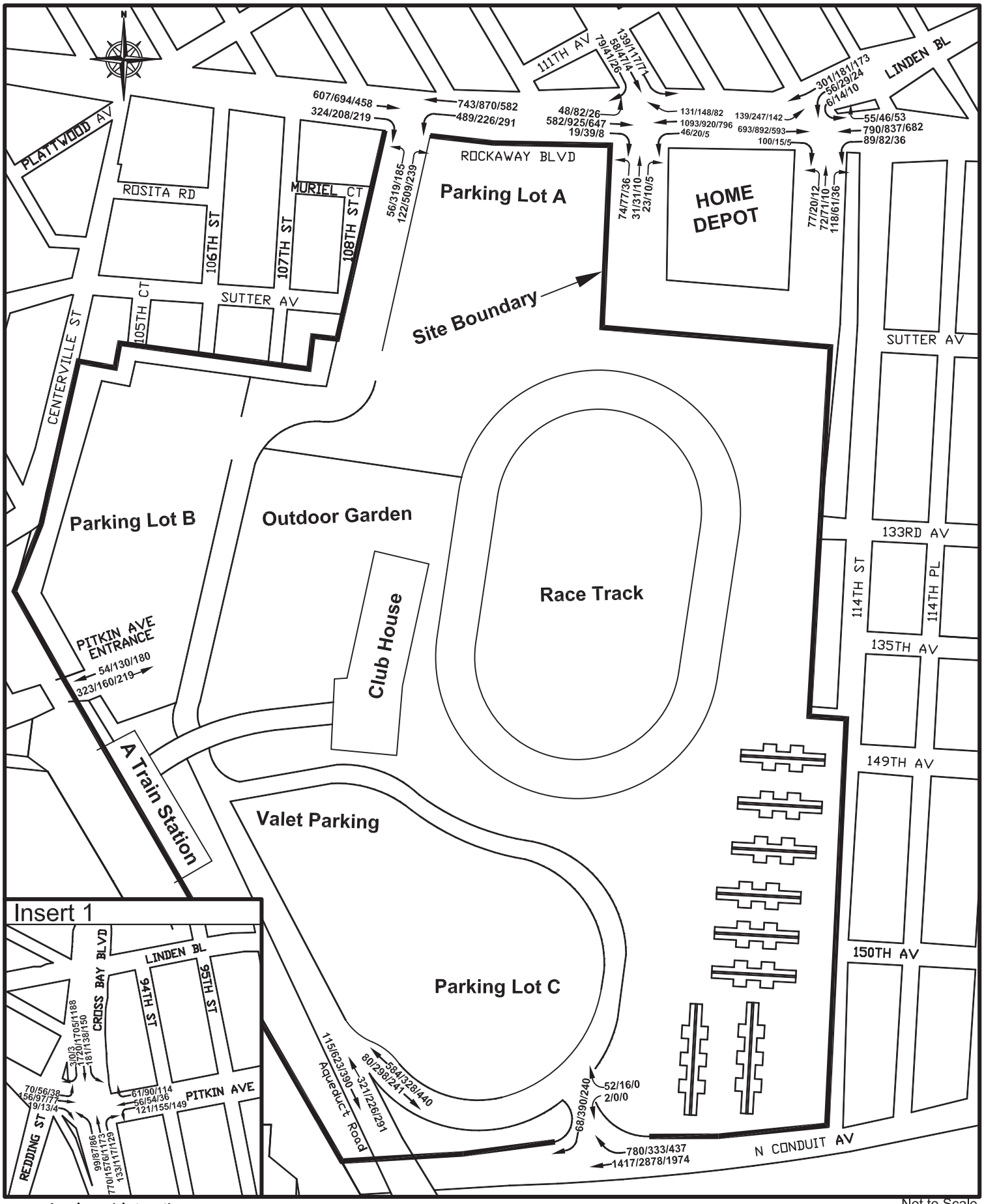
- Analyzed Interstions XX/XX/XX - MD/PM/EVE

Not to Scale

Aqueduct Racetrack Video Lottery Terminals

Figure 10

2011 Build Saturday Traffic Volumes



- Analyzed Interstions XX/XX/XX - MD/PM/EVE

Not to Scale

Table 11
2011 Build Conditions
Level of Service at Analyed Intersctions

Weekday (Friday)

Signalized Intersection	Lane Group	2011 No-Build MD Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 Build MD Peak Hour V/C Ratio	Delay (sec/veh)	LOS		2011 No-Build PM Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 Build PM Peak Hour V/C Ratio	Delay (sec/veh)	LOS		2011 No-Build EVE Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 BuildEVE Peak Hour V/C Ratio	Delay (sec/veh)	LOS	
Rockaway Blvd (E-W) @	EB-TR	0.30	10.8	B	0.44	18.0	B		0.32	10.8	B	0.44	17.6	B		0.31	11.70	B	0.61	22.4	C	
Aqueduct Driveway/108th St (N-S)	WB-L	0.24	11.3	B	0.59	26.3	C		0.03	8.8	A	0.52	27.5	C		0.00	9.3	A	0.75	40.1	D	
	WB-T	0.33	11.1	B	0.39	17.2	B		0.49	13.0	B	0.49	13.0	B		0.27	11.3	B	0.27	11.3	B	
	NB-L	0.02	30.3	C	0.11	31.5	C		0.32	34.8	C	0.52	39.2	D		0.01	19.4	B	0.20	21.5	C	
	NB-LR	0.05	30.8	C	0.18	32.9	C		0.32	35.3	D	0.55	41.1	D		0.00	19.3	B	0.21	21.9	C	
	NB-R	0.05	30.9	C	0.17	32.8	C		0.29	34.8	C	0.49	39.8	D		0.00	19.4	B	0.19	21.6	C	
							A															
Rockaway Blvd (E-W) @	EB-L	0.26	20.2	C	0.19	19.1	B		0.34	19.9	B	0.23	22.3	C		0.11	13.6	B	0.16	14.8	B	
111th St (N-S)	EB-TR	0.30	18.6	B	0.34	19.3	B		0.36	16.1	B	0.42	16.8	B		0.33	15.2	B	0.45	16.6	B	
	WB-L	0.03	11.2	B	0.03	11.9	B		0.02	10.0	A	0.03	11.0	B		0.01	8.1	A	0.01	9.6	A	
	WB-TR	0.38	12.6	B	0.57	23.3	C		0.50	11.4	B	0.71	23.2	C		0.26	8.4	A	0.41	9.7	A	
	NB-LTR	0.09	29.7	C	0.09	29.7	C															
	NB-DefL								0.21	36.8	D	0.21	36.8	D		0.16	25.7	C	0.16	25.7	C	
	NB-TR								0.08	34.1	C	0.08	34.1	C		0.09	24.4	C	0.09	24.4	C	
	SB-LTR	0.41	36.1	D	0.41	36.1	D		0.81	66.8	E	0.81	66.8	E		0.34	28.5	C	0.34	28.5	C	
Rockaway Blvd (E-W) @	EB-L	0.20	10.7	B	0.23	15.1	B		0.70	29.3	C	0.70	44.9	D		0.24	9.5	A	0.34	15.0	B	
Linden Blvd (N-S)	EB-TR	0.30	10.8	B	0.39	17.7	B		0.52	13.5	B	0.68	23.3	C		0.31	9.3	A	0.49	17.7	B	
	WB-L	0.18	10.5	B	0.16	13.8	B		0.28	13.2	B	0.22	23.8	C		0.06	7.7	A	0.05	11.1	B	
	WB-TR	0.28	10.6	B	0.40	18.0	B		0.47	12.7	B	0.63	22.2	C		0.23	8.6	A	0.44	17.1	B	
	NB-LTR	0.21	32.7	C	0.21	32.7	C		0.16	32.1	C	0.16	32.1	C		0.10	23.7	C	0.10	23.7	C	
	SB-LT	0.16	32.3	C	0.16	32.3	C		0.12	31.6	C	0.12	31.6	C		0.04	23.2	C	0.04	23.2	C	
	SB-R	0.30	35.5	D	0.31	27.3	C		0.39	37.7	D	0.39	29.1	C		0.17	25.0	C	0.27	18.2	B	
Pitkin St (E-W) @	EB-LTR	0.21	34.2	C	0.25	34.7	C		0.34	36.1	D	0.47	40.6	D		0.15	33.3	C	0.19	33.9	C	
Cross Bay Blvd (N-S)	WB-LTR	0.57	46.7	D	0.47	41.4	D	WB approach	0.96	130.3	F	0.88	85.3	F	WB approach	0.55	44.8	D	0.60	46.1	D	WB approach
	WB-R				0.20	34.7	C	39.3 sec				0.30	38.4	D	71.4 sec				0.24	35.2	D	42.6sec
	NB-L	0.23	23.5	C	0.23	24.4	C		0.32	43.7	D	0.32	42.6	D		0.23	26.1	C	0.23	26.1	C	
	NB-TR	0.83	31.7	C	0.88	34.9	C		0.98	53.5	D	0.98	52.6	D		0.75	28.1	C	0.80	30.2	C	
	SB-L	0.26	34.0	C	0.43	42.0	D		0.27	38.8	D	0.44	44.3	D		0.17	26.9	C	0.47	43.1	D	
	SB-TR	0.64	25.3	C	0.66	25.6	C		1.04	117.3	F	1.00	70.3	E		0.64	25.3	C	0.64	25.3	C	
														A								
North Conduit Ave (E-W) @	SB-R	0.01	9.1	A	0.13	11.5	B		0.16	10.2	B	0.35	11.7	B		0.00	9.6	A	0.22	10.6	B	
Aqueduct Racetrack (SB)																						
(Unsignalized)																						

Saturday

Signalized Intersection	Lane Group	2011 No-Build MD Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 Build MD Peak Hour V/C Ratio	Delay (sec/veh)	LOS		2011 No-Build PM Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 Build PM Peak Hour V/C Ratio	Delay (sec/veh)	LOS		2011 No-Build EVE Peak Hour V/C Ratio	Delay (sec/veh)	LOS	2011 Build EVE Peak Hour V/C Ratio	Delay (sec/veh)	LOS	
Rockaway Blvd (E-W) @	EB-TR	0.44	12.4	B	EB-T 0.41	21.4	C		0.26	10.3	B	0.47	23.9	C		0.27	11.30	B	0.59	23.4	C	
Aqueduct Driveway/108th St (N-S)					EB-R 0.65	29.9	C															
	WB-L	1.08	223.2	F	0.98	98.6	F		0.05	9.0	A	0.70	43.4	D		0.00	9.3	A	0.80	43.9	D	
	WB-T	0.39	11.7	B	0.37	10.2	B		0.48	12.9	B	0.52	16.6	B		0.37	12.3	B	0.37	12.3	B	
	NB-L	0.04	30.5	C	0.13	34.0	C		0.40	36.3	D	0.57	36.2	D		0.01	19.4	B	0.33	23.2	C	
	NB-LR	0.14	32.3	C	0.29	37.4	D		0.64	44.9	D	0.73	44.9	D		0.00	19.4	B	0.34	23.8	C	
	NB-R	0.14	32.3	C	0.28	37.4	D		0.60	43.4	D	0.70	43.3	D		0.00	19.3	B	0.31	23.3	C	
Rockaway Blvd (E-W) @	EB-L	0.34	24.4	C	0.19	31.3	C		0.38	20.8	C	0.27	24.9	C		0.10	13.5	B	0.08	14.5	B	
111th St (N-S)	EB-TR	0.38	19.7	B	0.41	20.3	C		0.33	15.7	B	0.40	16.6	B		0.29	14.7	B	0.46	16.7	B	
	WB-L	0.10	14.0	B	0.11	14.9	B		0.05	10.0	A	0.06	11.5	B		0.01	6.6	A	0.01	10.2	B	
	WB-TR	0.57	15.3	B	0.82	31.4	C		0.47	10.9	B	0.70	22.8	C		0.34	9.1	A	0.65	20.0	B	
	NB-LTR	0.34	35.4	D	0.34	35.4	D		0.40	41.8	D	0.40	41.8	D		0.14	25.4	C	0.14	25.4	C	
	SB-LTR	0.14	30.6	C	0.14	30.6	C		0.12	34.6	C	0.12	34.6	C		0.04	23.9	C	0.04	23.9	C	
	SB-LTR	0.85	64.3	E	0.85	64.3	E		0.80	65.1	E	0.80	65.1	E		0.37	29.4	C	0.37	29.4	C	
Rockaway Blvd (E-W) @	EB-L	0.39	14.5	B	0.41	24.0	C		0.68	26.1	C	0.70	45.0	D		0.21	9.4	A	0.37	18.7	B	
Linden Blvd (N-S)	EB-TR	0.40	11.8	B	0.50	19.5	B		0.41	11.9	B	0.60	23.8	C		0.23	8.7	A	0.43	16.9	B	
	WB-L	0.28	12.4	B	0.24	18.1	B		0.30	12.8	B	0.25	22.5	C		0.08	7.9	A	0.08	11.0	B	
	WB-TR	0.37	11.5	B	0.53	19.9	B		0.41	11.9	B	0.63	24.3	C		0.30	9.2	A	0.55	18.8	B	
	NB-LTR	0.50	37.8	D	0.50	37.8	D		0.25	33.2	C	0.25	33.2	C		0.10	23.7	C	0.10	23.7	C	
	SB-LT	0.14	32.0	C	0.14	32.0	C		0.11	31.6	C	0.11	31.6	C		0.09	23.7	C	0.09	23.7	C	
	SB-R	0.93	98.2	F	0.83	52.5	D		0.49	40.7	D	0.47	28.5	C		0.37	28.5	C	0.43	21.2	C	
Pitkin St (E-W) @	EB-LTR	0.36	36.40	D	0.51	42.0	D		0.23	34.4	C	0.31	35.9	D		0.14	33.2	C	0.18	32.3	C	
Cross Bay Blvd (N-S)	WB-LTR	1.02	189.6	F	0.83	77.1	E	WB approach	0.84	74.0	E	0.88	79.1	E	WB approach	0.38	39.1	D	0.67	47.9	D	WB approach
	WB-R				0.23	37.7	D	67.0 sec				0.34	37.6	D	66.6 sec				0.35	35.9	D	43.4 sec
	NB-L	0.33	38.1	D	0.29	34.9	C		0.28	37.6	C	0.28	37.6	D		0.25	23.6	C	0.26	25.7	C	
	NB-TR	0.91	37.4	D	0.95	44.3	D		0.79	29.4	C	0.83	31.3	C		0.61	24.5	C	0.69	27.7	C	
	SB-L	0.38	41.6	D	0.51	44.2	D		0.22	32.5	C	0.47	43.5	D		0.15	19.6	B	0.48	38.9	D	
	SB-TR	0.78	29.0	C	0.78	29.0	C		0.82	30.7	C	0.82	30.7	C		0.58	23.9	C	0.60	25.5	C	
North Conduit Ave (E-W) @	NB-R	0.02	9.8	A	0.11	10.3	B		0.35	12.2	B	0.69	21.1	C		0.00	11.5	B	0.20	11.8	B	
Aqueduct Racetrack (SB)																						
(Unsignalized)																						

NOTES:
EB-Eastbound, WB-Westbound, NB-Northbound, SB-Southbound
L-Left, T-Through, R-Right, DfL-Analysis considers a Defacto Left Lane on this approach .
V/C Ratio - Volume to Capacity Ratio, SEC/VEH - Seconds per vehicle
LOS - Level of service
* -Significant Impact in the 2011 Build Condition
Analysis is based on the 2000 Highway Capacity Manual Methodology (HCS 2000+ 5.3).

TABLE 12

Estimated Parking Accumulation For Proposed VLT Operation

Time	Friday In	Friday Out	Friday Accumulation	Saturday In	Saturday Out	Saturday Accumulation
7-8	68	38	30	36	24	12
8-9	70	41	59	53	37	28
9-10	175	53	181	127	33	122
10-11	418	173	426	598	137	583
11-12	502	243	685	568	333	818
12-01	690	310	1,065	914	243	1,489
01-02	604	416	1,253	810	493	1,806
02-03	620	453	1,420	855	567	2,094
03-04	650	539	1,531	916	741	2,269
04-05	657	627	1,561	899	840	2,328
05-06	745	609	1,697	1,036	848	2,516
06-07	897	564	2,030	1,334	888	2,962
07-08	1,038	630	2,438	1,228	811	3,379
08-09	1,285	719	3,004	1,428	1,168	3,639
09-10	1,066	920	3,150	1,506	1,033	4,112
10-11	368	620	2,898	405	840	3,677
11-12	274	704	2,468	383	936	3,124
12-11	166	643	1,991	245	790	2,579
1-2	64	1,040	1,015	80	1,284	1,375
2-3	55	1,070	0	18	1,393	0

At gaming facilities, a portion of the parking demand is typically accommodated by valet parking, which would be offered by the facility operator. Data collected at Yonkers raceway indicate that approximately 16 percent of VLT patrons choose valet parking on Friday and 19 percent on Saturday. While it is not known precisely what the valet component would be at the proposed Aqueduct facility, the more efficient utilization of parking space associated with valet parking would further increase the overall parking capacity at the site, and therefore no parking impacts are expected.

F. CONCLUSION

The introduction of VLT operation at Aqueduct Racetrack would result in increased transportation demand in the study area. However, with transportation improvements both on-site and off-site, no significant adverse traffic or parking impacts are expected.

It is important to note that the traffic impact analysis presented in this attachment should be considered very conservative, especially with respect to Saturdays when the forecasted conditions (VLT demand concurrent with a premiere race) would occur only two or three times per year. Aqueduct is open for racing for just under six months of the year. As shown in Table 3, when accounting for the fact that there is no racing on Mondays and Tuesdays, as well as during selected holidays, there is no racing at Aqueduct for two-thirds of the days each year. Further, as noted above, conditions assessed for the key traffic period on Saturday -- the 5:30 to 6:30 PM period – would occur approximately twice per year (during the Gotham Stakes and the Wood Memorial races) and potentially during a small number of other undefined special events. Therefore, as an example, the approximately 5,000 parking spaces of total peak demand on Saturday would occur very infrequently. Similarly, the proposed traffic improvements implemented to accommodate these rare peak periods would result in very good levels of service under more typical conditions, even when there is racing at Aqueduct. As such, no significant adverse traffic or parking impacts are expected.

A. INTRODUCTION

This attachment describes the transit and pedestrian characteristics and potential impacts associated with the Proposed Project, which is the addition of 4,500 video lottery terminals ("VLTs") at Aqueduct Racetrack in Ozone Park, Queens. In the future with the Proposed Project, the new VLTs will be installed in a renovated Grandstand, and would be in full operation by 2011. The analyses in this attachment focus on the subway and local bus modes operated by MTA New York City Transit ("NYC Transit" or "NYCT") and MTA Bus, as well as pedestrian trips. Existing 2009 conditions at transit and pedestrian facilities serving the racetrack are described, as are future conditions in the year 2011 without the Proposed Project (the "No Build" condition), and the increase in travel demand resulting from the addition of 4,500 VLTs. Conditions in the 2011 future with the Proposed Project (the "Build" condition) are then assessed.

Based on patron demand data from the existing video lottery terminals at Yonkers Raceway and the schedule for races at Aqueduct Raceway, the peak periods of travel demand at Aqueduct with the proposed VLT installation are expected to be the 12-1 PM (midday), 5:00-6:00 PM and 8:30-9:30 PM early evening peak hours on a Friday, and 12-1 PM, 5:30-6:30 PM and 8:30-9:30 PM on a Saturday. Based on the travel demand forecast shown in Table 9, "Traffic and Parking," it is estimated that the Proposed Project would generate approximately 243 to 486 subway trips during these periods on a Friday, and from 281 to 631 subway trips during these periods on a Saturday. Peak hour trips by local bus would range from 297 to 594 on a Friday, and from 344 to 771 on a Saturday, while pedestrian (walk-only) trips would range from 54 to 108 on a Friday, and from 62 to 140 on a Saturday.

B. EXISTING CONDITIONS

Data Collection

Data on existing transit and pedestrian demand at Aqueduct Raceway were collected on two weekdays (Thursday and Friday) and one Saturday in early April 2009. These data included subway trips at both subway stations serving the project site (the Aqueduct Racetrack and North Conduit/Aqueduct subway stations), and pedestrians entering and exiting the project site at the Pitkin Avenue entrance, and the two entrances on Rockaway Boulevard.

Subway Service

As shown in Figure 1, two NYC Transit subway stations provide access to Aqueduct Raceway – the Aqueduct Racetrack station and the Aqueduct-North Conduit Avenue station. Service at these stations is provided by A-trains operating on the IND Rockaway Line between Far Rockaway, Queens and 207th Street in Manhattan. The Aqueduct Racetrack station consists of a single side platform adjacent to the Manhattan-bound track with direct access to the Grandstand. As this station is only open from 11 AM to 7 PM on race days, and as only Manhattan-bound trains serve this station, all demand consists of trips either coming from the south at the beginning of the race card or exiting the racetrack en route to northern Queens, Brooklyn and Manhattan at the end of the day. The Aqueduct-North Conduit Avenue station consists of two side platforms, one each for Manhattan-bound and Queens-bound A-trains. On race days, a free courtesy bus service is provided by NYRA to shuttle subway passengers between this station and the Grandstand.

Table 1 shows the average weekday and Saturday entering turnstile counts at these two stations for the years 2005 through 2007, as well as the 2007 ranking of each station based on average weekday ridership relative to all 423 stations system-wide. As shown in Table 1, average demand at both of these two stations is very low relative to the other stations in the system. The Aqueduct Racetrack station ranks 422nd in ridership out of the 423 stations in the system, with an average of 58 passengers per day on weekdays and 167 on Saturdays. The Aqueduct-North Conduit Avenue station ranks 416th in ridership with an average of 895 passengers per day on weekdays and 430 on Saturdays. Overall, weekday demand increased by approximately 3.1 percent and Saturday demand by four percent from 2005 to 2007 at these two subway stations. Average weekday demand at the Aqueduct Racetrack station decreased by approximately 4.9 percent while average Saturday demand decreased by 5.1 percent. By contrast, weekday demand at the Aqueduct-North Conduit Avenue station increased during this same period by 3.7 percent on weekdays and eight percent on Saturdays.

Data from field surveys conducted in 2003 indicate that the percentage of racetrack patrons using the subway en route to Aqueduct is approximately 10 percent on weekdays and 12 percent on Saturdays. More recent data from surveys conducted in April 2009 indicate that the subway mode currently accounts for nine percent of trips en route to Aqueduct on both weekdays Saturdays.

Table 1
Average Weekday and Saturday Entering Turnstile Counts

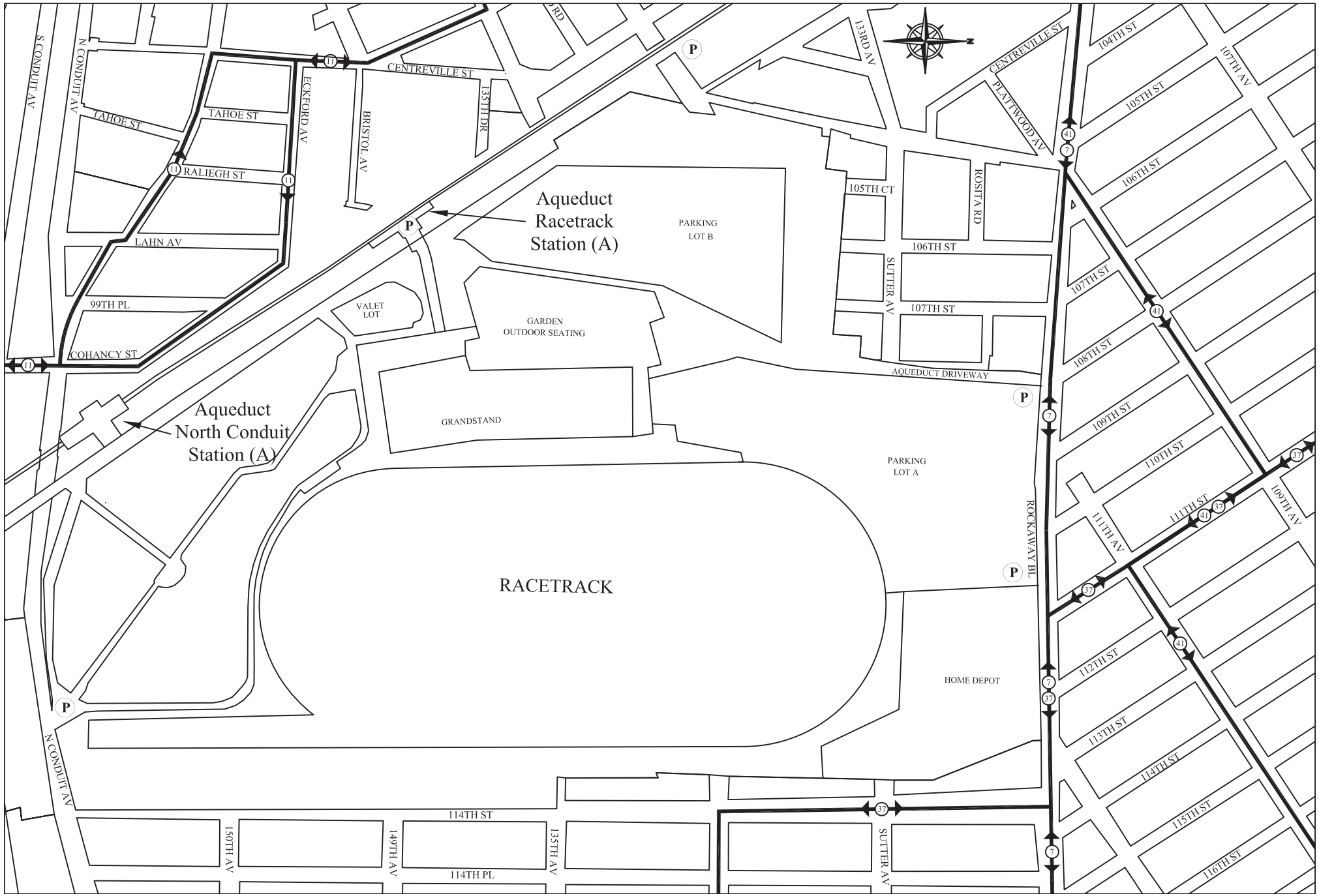
Subway Station	2007 Rank	2005	2006	2007	Percent Change 2005—2007
Weekday					
Aqueduct Racetrack (A) Station	422	61	73	58	(4.9%)
Aqueduct - North Conduit Avenue (A) Station	416	863	909	895	3.7%
	Totals	924	982	953	3.1%
Saturday					
Aqueduct Racetrack (A) Station	422	176	217	167	(5.1%)
Aqueduct - North Conduit Avenue (A) Station	416	398	438	430	8.0%
	Totals	574	655	597	4.0%

Notes:
Ranking out of 423 subway stations system-wide by 2007 average weekday ridership.
Source: NYCT 2007 turnstile registration data.

Bus Service

As shown in Figure 1, a total of five local bus routes operate within the vicinity of the project site – the Q7, Q11, Q37 and Q41 operated by MTA Bus, and the B15 operated by NYC Transit. As the B15 operates along North Conduit Avenue (westbound) and Nassau Expressway (eastbound) and does not provide convenient access to the racetrack, the majority of project-generated bus trips are expected to utilize the Q7, Q11, Q37 and Q41. The assessment of local bus service at the project site therefore focuses on these four routes, each of which is described below.

Area Subway Stations and Bus Routes



Legend: (11) Bus Route Number — Direction of Service (P) Pedestrian Entrance

Q7 (Rockaway Boulevard/Pitkin Avenue)

The Q7 provides daily service in Queens and Brooklyn between 148th Street/South Cargo Road at JFK Airport and a western terminus at the Euclid Avenue subway station in East New York. Additional service operates between the Rockaway Boulevard subway station in Ozone Park and Sutphin Boulevard/Rockaway Boulevard at Baisley Park. These services operate every five to 20 minutes on weekdays and every 20 minutes on Saturdays. As shown in Figure 1, in the vicinity of the project site this route operates along Rockaway Boulevard with stops adjacent to an entrance to the racetrack.

Q11 (Woodhaven Boulevard)

The Q11 provides daily service in Queens, between the Woodhaven Boulevard subway station in Elmhurst and either 164th Avenue/99th Street in Howard Beach or 164th Avenue/104th Street in Hamilton Beach. Service is provided every 30 minutes on each of the two routes. In the vicinity of the project site, Q11 buses operate along Pitkin Avenue, Eckford Avenue (southbound) and Albert Road (northbound).

Q37 (111 Street/135th Avenue)

The Q37 provides daily service in Queens every six to 20 minutes on weekdays and every 20 to 30 minutes on Saturdays between the Kew Gardens-Union Turnpike subway station in Kew Gardens and 131st Street/135th Avenue in South Ozone Park. In the vicinity of the project site, Q37 buses operate along Rockaway Boulevard with a stop at 111th Street.

Q41 (127th Street/111th Avenue)

The Q41 provides daily service in Queens every nine to 20 minutes on weekdays and every 15 to 24 minutes on Saturdays between 164th Avenue/Cross Bay Boulevard in Lindenwood and the 165th Street Bus Terminal in Jamaica. In the vicinity of the project site, Q41 buses operate along Rockaway Boulevard, 109th and 111th Avenues and 111th Street. The nearest stop to the project site is located at the intersection of 111th Street and 111th Avenue one block north of the racetrack's main entrance.

In addition to these transit services, the New York Racing Association provides free courtesy buses to shuttle racetrack patrons between the Grandstand and outlying parking and subway facilities. Courtesy buses serve Parking Lot A at 111th Street and Rockaway Boulevard, the facility's Racetrack road pedestrian entrance on the south side of the project site, and the Aqueduct-North Conduit Avenue subway station.

Table 2 presents a summary of the approximate number of buses serving the project site in each peak hour. As shown in Table 2, on weekdays a total of approximately 32 buses (all routes, all directions) stop in proximity to Aqueduct Racetrack in the midday peak hour, 56 in the PM and 36 in the early evening peak hour. On Saturdays, the number of buses total approximately 34 in each of the midday and PM peak hours, and 26 in the early evening peak hour.

Table 2
Buses Per Hour Serving the Aqueduct Racetrack

Route	Direction	Weekday			Saturday		
		Midday	PM	Evening	Midday	PM	Evening
Q7[1]	EB	6	10	6	6	6	6
	WB	6	10	6	6	6	6
Q11[2]	NB	4	4	4	4	4	4
	SB	4	4	4	4	4	4
Q37	NB	3	8	4	3	3	2
	SB	3	8	4	3	3	2
Q41	NB	3	6	4	4	4	3
	SB	3	6	4	4	4	3
	Total	32	56	36	34	34	26

Notes:
(1) Services to Euclid Avenue and Rockaway Blvd subway stations combined.
(2) Services to Howard Beach and Hamilton Beach combined.

Pedestrians

Existing pedestrian demand in the vicinity of the project site is generally very low. The greatest demand is typically found on sidewalks along Rockaway Boulevard and is associated with the bus services operating along this street.

As shown in Figure 1, pedestrian entrances to the project site are located on Rockaway Boulevard at 111th Street and at 108th Street/Aqueduct Driveway, at Pitkin Avenue, and on North Conduit Avenue. In addition, pedestrians en route to and from the two subway stations serving the racetrack enter and exit the project site at an entrance adjacent to the Aqueduct Racetrack station and at an entrance adjacent to the Aqueduct-North Conduit station. Table 3 shows the numbers of pedestrians entering and exiting the project site at each of these entrances during the midday, PM and early evening peak hours on a weekday (Friday) and a Saturday. As shown in Table 3, the highest volumes typically occur on Saturdays at the access points for the two subway stations serving the project site. A total of 186 pedestrians per hour were counted arriving at the racetrack via the Aqueduct-North Conduit Avenue subway station in the midday peak hour (at the start of racing), and 226 pedestrians per hour were counted exiting the racetrack at the Aqueduct Racetrack subway station in the Saturday PM peak hour (when races end for the day). No trips were counted exiting via the Aqueduct-North Conduit Avenue station or entering via the Aqueduct Racetrack station during these periods, reflecting the fact that the latter station provides the most convenient access to the Grandstand but is only served by trains in the Manhattan-bound direction. It should also be noted that many of the pedestrians en route to and from the Aqueduct-North Conduit Avenue subway station utilize the free courtesy buses provided by NYRA on race days and therefore do not walk between this station to the Grandstand.

The non-subway entrance with the highest volume of pedestrian demand is the entrance on Rockaway Boulevard at 111th Street at which 174 pedestrians (in and out combined) were counted in the Saturday midday peak hour and 104 in the Saturday PM peak hour. Much of the demand at this entrance is en route to and from bus stops located along Rockaway Boulevard. The next highest number of pedestrians

Table 3
Existing Weekday and Saturday Peak Hour Pedestrian Trips at Racetrack Entrances

		Rockaway Blvd/111th St	Rockaway Blvd/Aqueduct Driveway	Pitkin Blvd	Aqueduct Racetrack Station	Aqueduct-N. Conduit Station	North Conduit Ave
Weekday							
Midday	In	60	4	31	0	88	4
	Out	13	0	5	0	0	1
	Total	73	4	36	0	88	5
PM	In	3	0	2	1	0	0
	Out	47	7	39	55	0	14
	Total	50	7	41	56	0	14
Evening	In	1	0	0	0	0	0
	Out	2	0	0	0	0	1
	Total	3	0	0	0	0	1
Saturday							
Midday	In	153	13	108	0	186	1
	Out	21	5	6	0	0	3
	Total	174	18	114	0	186	4
PM	In	7	0	3	0	0	1
	Out	97	4	51	226	0	34
	Total	104	4	54	226	0	35
Evening	In	0	2	0	0	0	0
	Out	4	0	0	0	0	3
	Total	4	2	0	0	0	3

Notes:
Source: PHA April 2009 field counts.

were counted at the Pitkin Boulevard entrance with a total of 114 trips in the Saturday midday peak hour. On weekdays, by contrast, no subway or street entrance to the racetrack experienced more than 88 pedestrian trips in any peak hour during the 2009 count program.

C. FUTURE WITHOUT THE PROPOSED PROJECT (NO BUILD)

During the 2009 through 2011 period, no major changes to subway service and local bus routes in the vicinity of Aqueduct Racetrack are anticipated. Demand on the subway stations and local bus routes serving the project site is expected to increase as a result of general background growth (estimated at one percent per year) and new development in this area of Queens. As average daily attendance at Aqueduct Racetrack has been trending downward in recent years, pedestrian activity at the entrances to the racetrack is not expected to increase in the future without the Proposed Project.

D. FUTURE WITH THE PROPOSED PROJECT (BUILD)

In future with the Proposed Project, 4,500 video lottery terminals would be installed in a renovated Grandstand at the Aqueduct Racetrack by 2011. The installation of these new VLTs, would result in increased transit demand at the subway stations and bus routes serving the racetrack, as well as increased pedestrian activity at the entrances to the project site. Table 6 in "Traffic and Parking," presents the transportation planning factors utilized in the travel demand forecast for the proposed VLT installation at Aqueduct Racetrack, while Table 4, below, summarizes the total estimated peak hour transit and pedestrian trips generated by the Proposed Project in the weekday and Saturday peak hours. As shown in Table 4, it is estimated that the Proposed Project would generate approximately 243, 329 and 486 subway trips in the midday, PM and early evening peak hours on a Friday, respectively, and 281, 458 and 631 subway trips during these periods, respectively, on a Saturday. Trips by local bus would total 297, 402 and 594 during these periods, respectively, on a Friday, and 344, 560 and 771, respectively on a Saturday. (As discussed below, the Proposed Project would also generate trips by charter bus.) Pedestrian (walk-only) trips would total 54, 73 and 108 in the midday, PM and early evening peak hours, respectively, on a Friday, and 62, 102 and 140, respectively on a Saturday.

Table 4
Transit and Pedestrian Travel Demand Forecast for the Proposed Project
(Person Trips)

	Midday Peak Hour			PM Peak Hour			Evening Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Weekday									
Subway	168	75	243	181	148	329	311	175	486
Local Bus	205	92	297	21	181	402	380	214	594
Walk-Only	37	17	54	40	33	73	69	39	108
Saturday									
Subway	222	59	281	252	206	458	347	284	631
Local Bus	272	72	344	308	252	560	424	347	771
Walk-Only	49	13	62	56	46	102	77	63	140

Subway Service

As shown in Table 4, on a Friday the proposed VLT installation would generate an estimated 243, 329 and 486 subway trips (in and out combined) in the midday, PM and early evening peak hours, respectively, and 281, 458 and 631 subway trips during these periods, respectively, on a Saturday. Based on existing ridership patterns, on race days (when overall demand at the project site would be greatest) most if not all inbound subway trips would arrive at the Aqueduct-North Conduit Avenue station while outbound trips would depart via the Aqueduct Racetrack station during the midday and PM peak hours, and the Aqueduct-North Conduit Avenue station in the evening peak hour. (On non-race days, all subway trips – both inbound and outbound -- would utilize the Aqueduct-North Conduit Avenue station at all times.)

As shown in Table 4, the highest project generated subway demand would occur in the Saturday evening peak hour when there would be a total of 631 subway trips -- 347 inbound and 284 outbound – all of which would occur at the Aqueduct-North Conduit Avenue station (as the Aqueduct Racetrack station currently closes at 7 PM). The highest project-generated demand at the Aqueduct Racetrack station would total 206 outbound trips in the Saturday PM peak hour. As noted previously, existing demand at both of these two subway stations is very low. The Aqueduct Racetrack station ranks 422nd in ridership out of the 423 stations in the system, with an average of 58 passengers per day on weekdays and 167 on Saturdays. The Aqueduct-North Conduit Avenue station ranks 416th in ridership with an average of 895 passengers per day on weekdays and 430 on Saturdays. Given this very low level of existing demand, it is unlikely that the anticipated demand from the Proposed Project would significantly impact operations at these two stations

Bus Service

As shown in Table 4, on a Friday the proposed VLT installation would generate an estimated 297, 402 and 594 local bus trips (in and out combined) in the midday, PM and early evening peak hours, respectively, and 344, 560 and 771 local bus trips during these periods, respectively, on a Saturday. These new trips would be distributed between the four bus routes operating in proximity to the racetrack (the Q7, Q11, Q37 and Q41). Based on the numbers of buses currently scheduled to serve the vicinity of the project site in each peak hour (see Table 2), the average number of additional passengers per bus in each peak hour would range from seven in the weekday PM peak hour to 30 in the Saturday evening peak hour. (Under current MTA Bus loading guidelines, a standard transit bus has a capacity of 65 passengers.)

As standard practice, MTA Bus routinely conducts ridership counts and adjusts bus service frequency to meet its service criteria, within fiscal and operating constraints. Therefore, no sponsor-provided improvements to local bus service would be needed as a result of the Proposed Project.

In addition to trips by local transit buses, the Proposed Project would also generate trips by charter buses. It is estimated that on weekdays, these trips would total 81 in the midday peak hour, 109 in the PM and 162 in the early evening peak hour. On Saturdays, trips by charter bus are expected to total approximately 94, 153 and 211 during these peak hours, respectively.

Pedestrians

As noted previously, existing pedestrian activity in the vicinity of the project site is relatively low. In the future with the Proposed Project, the proposed VLT installation would generate from 54 to 140 additional walk-only trips (in and out combined) in each peak hour. Walk trips associated with VLT patrons en route to and from area bus stops would add from 297 to 771 additional trips to area sidewalks, mostly concentrated along Rockaway Boulevard and Pitkin Avenue. Project-generated subway trips en route and from the Aqueduct Racetrack and Aqueduct-North Conduit Avenue subway stations are not expected to contribute substantial numbers of pedestrians to area sidewalks as there is direct access between the Aqueduct Racetrack station and the Grandstand, many of the pedestrians en route to and from the Aqueduct-North Conduit Avenue subway station utilize the free courtesy buses provided by NYRA on race days and therefore do not walk between this station to the Grandstand.

Given that existing pedestrian volumes in the vicinity of the project site are relatively low, and that project-generated walk-only and walk-bus trips would be disbursed between entrances widely spaced around the project site, significant adverse pedestrian impacts are not expected to occur as a result of the Proposed Project.

F. CONCLUSION

This attachment assesses the potential effects on transit and pedestrian facilities of the proposed installation of 4,500 video lottery terminals at the Aqueduct Racetrack. Given the very low level of existing demand at the two subway stations serving the project site, the additional subway trips generated by the Proposed Project are not expected to result in significant adverse subway station impacts in any peak hour.

In the future, should improvements be made to the Aqueduct Racetrack station immediately adjacent to the project site (e.g., installation of a new elevated walkway between the station and the Grandstand entrance, providing access to Queens-bound trains, providing daily service and increasing the hours of operation), it would not only have the potential to increase subway ridership, but would also potentially reduce traffic and parking demands.

As discussed above, there are four MTA Bus routes operating in proximity to the project site. It is possible that when the video lottery terminals begin operating 365 days per year at Aqueduct Racetrack, one or more of these routes could be re-routed into the project site. The schedules of several of these routes are currently based on providing minimum service frequency (i.e., are not demand sensitive). Therefore, it is likely that increased demand could readily be accommodated on these routes.

Walk trips associated with both transit modes as well as walk-only trips would be distributed at various entrances around the project site. Given the relatively low level of existing pedestrian activity in the vicinity of the project site, no operational impacts to pedestrian facilities are anticipated.

Noise Study

FROM: Scott Manchester

RE: Noise Study
Development and Operation of a Video Lottery Facility at Aqueduct Racetrack
New York State Office of General Services (NYSOGS)

FILE: 2069/46391

DATE: October 15, 2010

This technical memorandum presents the results of a noise study for the proposed installation of Video Lottery Terminals (VLTs) at the Aqueduct Racetrack in Ozone Park in Queens, New York (see Figure 1). To support the project, The New York State Division of the Lottery (NY Lottery) proposes the following site modifications, which will be coordinated by Genting New York, LLC (GeNY):

- Installation of 4,500± VLTs
- Interior renovations to the existing Grandstand and Clubhouse building to accommodate the VLTs and food and beverage program supporting a VLT gaming facility
- Construction of a new building entrance (Porte-Cochere)
- Construction of an eight-story, 2,858± vehicle parking garage, and repaving of existing surface parking
- Construction of a pedestrian bridge to connect the facility to an existing transit station
- Utility connections (*i.e.,* service connections, upgrades)
- Improvements to existing on and off-site roadways consisting of onsite circulation improvements, removal of entrance booths on Rockaway Blvd., and off-site signalization changes
- Construction of a 6,000± square foot electrical service building (transformer enclosure and related switchgear)
- Modifications to the existing storm water management system

The purpose of the noise study is to evaluate potential community noise impacts associated with the operation of the project, which will consist of sound from the operation of the VLTs and sound from traffic entering/exiting the project site.

The following technical memorandum presents the results of ambient sound level measurements conducted near the Aqueduct Racetrack, and assesses the potential for community noise impacts by comparing predicted project sound levels with New York State noise impact assessment guidelines. The noise study will be relied upon to assess potential impacts pursuant to the State Environmental Quality Review Act (SEQRA).

BACKGROUND

The proposed project will consist of operation of approximately 4,500 VLTs inside the existing Aqueduct Racetrack main building, the interior of which will be renovated to accommodate the new equipment. The proposed parking garage is anticipated to be constructed adjacent and attached to the existing building. The VLTs are predicted to result in an additional 8.5± million annual visitors per year (Habib, 2009), and it is anticipated that the normal operations for the VLT gaming will be year-round, 20 hours per day (8 AM to 4 AM), and 7 days per week.

REGULATIONS AND NOISE IMPACT SIGNIFICANCE CRITERIA

The NYSOGS indicated that the noise study should comply with New York State guidelines, which are provided in the New York State Department of Environmental Conservation's (NYSDEC) Program Policy "Assessing and

Mitigating Noise Impacts."[1] The NYSDEC guidance indicates that for a non-industrial setting, the noise during operations should not exceed ambient noise by more than 6 dBA. Therefore, the 6 dBA limit for non-industrial settings was used as the significance criteria to establish the project noise impact and the potential need for project improvements.

AFFECTED ENVIRONMENT AND EXISTING CONDITIONS

The potential affected environment consists of residential housing areas adjacent to the project site, the nearest of which are single/multiple private dwellings and apartments adjacent to the northwest, west and southwest Aqueduct property lines, and within 500 to 800 feet of the project site. Residences located adjacent or near the sound east and north Aqueduct property lines are less proximal to the project site (≥~1600 feet), and would experience lower sound levels from the project.

To characterize the community and identify sound levels of existing noise sources, sound levels were measured at two locations adjacent to the nearest noise-sensitive receptor areas to the project site. Noise-sensitive receptors are locations such as residences, places of worship, hospitals and recreation areas that may be most affected by increases in noise. The nearest receptors to the project site and the corresponding sound level measurement locations are depicted on Figure 1, and described as follows:

- Receptor area R-NW - Residences northwest of the project near Centerville Road and Sutter Avenue; characterized by measurement location ML-NW located near the Aqueduct northwest property line.
- Receptor area R-SW – Residences near Hawtree Street and Cohancy Street, west and southwest of the project; characterized by measurement location ML-SW located along Cohancy Street, approximately 150 west of the Aqueduct southwest property line.

At each measurement location, sound levels were measured for a 20-minute period during the day using a Type I integrating sound level analyzer. The analyzer was field-calibrated using a certified calibrator device before and after each test. During testing, average winds were calm to light (≤5 mph), and there was no precipitation. Background conditions included the operation of a seasonal flea market that was occurring in the Aqueduct's north parking lot, but horse racing at Aqueduct Racetrack was not occurring. Sound level measurement results are summarized in Table 1.

Table 1. ***Noise Measurement Results - Existing Daytime Ambient Sound Levels.***

Test Location	Measurement Period Date and Time	Background Sound Level (dBA)[a]	Average Sound Level (dBA)[b]	Upper 10% Sound Level (dBA)[c]
ML-NW	06/22/10 1250-1310	47	52	54
ML-SW	06/22/10 1351-1311	52	66	69

[a] Sound level exceeded 90 percent of the measurement period (L_{90}) and a measure of the near-minimum continuous background sound level.
[b] Energy-equivalent sound level (L_{eq}) and represents an average of the average of the time varying sound level.
[c] Sound level exceeded 10 percent of the measurement period (L_{10}) and a measure of the typical near-maximum sound level.

Background continuous sound levels at each location were due primarily to traffic on nearby streets. Intermittent ambient sound sources at each location included noise from the following:

[1] New York State Department of Environmental Conservation. Program Policy "Assessing and Mitigating Noise Impacts", DEP-00-1, February 2, 2001.

- motor vehicle traffic (ML-NW: 52 to 54 dBA; ML-SW: 60 to 70 dBA)
- train traffic from the New York City Mass Transit Authority (NYC MTA) rail line along the Aqueduct's west property line (54 to 56 dBA), and
- air traffic from the John F Kennedy (JFK) International Airport approximately 2 miles southeast of the Aqueduct Racetrack (65 to 81 dBA).

The United States Environmental Protection Agency (USEPA) has characterized the average sound levels of various community types using the "Day-Night Sound Level" descriptor. The Day-Night Sound Level (L_{dn}) is determined by averaging the daytime average sound level with the nighttime average sound level after adding a 10 dBA correction to the nighttime sound level to account for lower sound levels at night. According to USEPA characterizations, a normal suburban residential area has an average L_{dn} of 55 dBA, which is consistent with average sound levels measured near R-NW, and a noisy urban residential area has an average L_{dn} of 65 dBA, which is consistent with average sound levels measured in receptor area R-SW.

MAJOR NOISE SOURCES

Major new noise sources for the project are anticipated to consist of the following:

- vehicles entering and exiting the facility (entrance traffic),
- vehicles traveling on-site to and from parking areas and the parking garage (on-site vehicles), and
- operation of the VLTs

Sound emitted from new roofing HVAC units with evaporative coolers is assumed not to be a major new noise source. New HVAC unit sound will be offset by the elimination of sound from existing HVAC air handler units that are to be replaced. Nine existing HVAC units are proposed for replacement by three 80-ton and fourteen 170-ton units. The new HVAC units are anticipated to include visual screening, which would also function as a barrier to sound. Furthermore, since the new HVAC units would be of newer design, it is assumed that they will operate more efficiently and produce the same (or lower) sound level compared with the existing older HVAC units.

Entrance Traffic

Potential entrance traffic noise could result from increase traffic volume near each entrance. As indicated in the 2010 traffic memorandum prepared by Philip Habib and Associates, P.E., P.C. (Habib, 2010), it is anticipated that vehicles will enter the Aqueduct Racetrack from three locations, one located along the north property line and two along the south property line. The two main entrances are at the intersections of Rockaway Boulevard and 108th Street to the north and on North Conduit Avenue to the south. A secondary entrance is located at Racetrack Road, which extends southward over the Belt Parkway to Lefferts Boulevard. Since a typical vehicle approaching and departing from each entrance is assumed to have the same sound levels as existing vehicles on those roads, changes in average sound levels at each entrance was predicted by evaluating changes in traffic volume due to the project.

On-site Vehicles

Potential on-site vehicle noise could result from passenger vehicles at the project site. Once on-site, passenger vehicles will travel along site roadways to and from parking areas including a newly constructed parking garage anticipated to be located and attached the existing Aqueduct Racetrack main building. Maximum potential noise from on-site vehicles would occur at the access roadway closest to each off-site receptor area. The access roads assumed closest to each receptor and evaluated in this study were as follows:

- R-NW: Site access road to Rockway Boulevard entrance - running north-south along Aqueduct's northwest property line, and adjacent to 10th Street
- R-SW: Site access road to North Conduit Avenue/Racetrack Road entrances - running north-south along Aqueduct's southwest property line and adjacent to the NYC MTA rail line

Note that sound from vehicles operating within the parking garage was not considered a significant noise source since it is reduced by the partial enclosure of the garage and less proximal to off-site receptors.

Vehicles operating on site access roads are expected to be moving slower and would be quieter than similar vehicles on surrounding local streets. For this analysis, the reference sound level of on-site vehicles is assumed to be 50 dBA at 50 feet based on an on-site speed of 15 miles per hour.[2]

VLT Operation

The reference outdoor sound level from VLT operation was estimated by measuring sound levels outside the Yonkers Racetrack on June 22, 2010. The Yonkers Racetrack has 5,300 VLTs at their facility, of which it was estimated by the Yonkers management staff that the facility was operating at 25% capacity (1325 VLTs) on the day of the sound measurements visit.

Sound from Yonkers VLT operations was found to be inaudible outside the facility's building walls and inaudible 50 feet from entrance doorways. When VLTs were not audible, outdoor sound levels were 56 dBA. Therefore, it is estimated that VLT sound level outside the Yonkers Racetrack was at least 10 dBA below the outdoor sound level[3] and conservatively assumed to be 46 dBA. Using logarithmic decibel addition to correct the Yonkers outdoor VLT sound level to reflect the maximum full-capacity operation at Aqueduct (4500 VLTs), the reference outdoor sound levels from Aqueduct VLT operations is assumed to be 51 dBA at 50 feet from each entrance doorway.

NOISE PREDICTION, AND ASSESSMENT

Methodology

At each receptor, potential noise impacts from the project were assessed by comparing the predicted increase in ambient sound level due to project operations with the project noise impact significance limit of 6 dBA. Project noise impacts would be deemed significant and in need of improvement if the predicted increase in ambient sound level at a receptor due to project operation exceeded the 6 dBA limit.

Sound levels for vehicle entrance traffic were predicted based on the increase sound due to increased traffic volume. As traffic volume increases, vehicle entrance traffic sound levels increase by logarithmic addition according to the following equation:

Sound level increase (dBA) = 10log(N/100); where N = the total percent of traffic compared to existing[4].

Sound levels for on-site traffic and VLT sound were predicted by acoustical modeling of noise source reference sound levels to the nearest receptor. Reference sound levels of the noise sources reduce over distance by 6 dBA per doubling of the reference distance[5]. Additional reductions in sound were also considered due to attenuation from existing barriers consisting of the following:

- the NYC MTC rail line berm along the Aqueduct's west property line in front of R-SW
- the 8±-foot high wood fence along Aqueduct's northwest property line in front of portions of R-NW

[2] Based on the peak pass-by sound level of car or light truck traveling at 15 mph (Hoover and Keith, 1994).
[3] Based on logarithmic decibel addition, sound sources within 10 dBA of the ambient sound level would audibly increase sound levels by at least 1 dBA (Hoover and Keith, 1994).
[4] From decibel addition of multiple similar noise sources (Hoover and Keith, 1994).
[5] Sound levels will similarly increase at distances closer than the reference distance.

Predicted project sound levels were added to the existing ambient sound levels to establish the total sound level at each receptor. For on-site vehicle sound levels, which are variable and intermittent, average ambient sound levels at each receptor were used for comparison. For VLT sound levels, which are continuous and steady, background ambient sound levels at each receptor were used for comparison. The resultant increase in sound levels at each receptor was then compared with the 6 dBA noise impact significance criteria.

Results

Entrance Traffic

Vehicle entrance traffic noise impacts were predicted at each receptor based on the increase in existing traffic in the vicinity of each entrance. Results are presented in Table 2, and are based on the predicted maximum project vehicle trips per hour of 2652 (Habib, 2009), distributed across three entrances as presented in the 2010 traffic memorandum (Habib, 2010). This noise study was conservatively based on sound from traffic volumes assuming the 18-hour per day operation used for the 2009 traffic estimate. Peak traffic noise from the currently-proposed 20-hour per day operational schedule is assumed to be the same or less, since the same total daily vehicle trips would be spread over more hours resulting in lower vehicle trips per hour.

Table 2. ***Noise Assessment Results – Entrance and Exit Traffic- Maximum Traffic Hour.***

Receptor	Entrance	Percent Use	Maximum Project Vehicle Trips/hr (Peak Total = 2654)[a]	Existing Traffic[b] Vehicle Trips/hr	Total Traffic (per hr)	Traffic Increase[c] (%)	Sound Level Increase[d] (dBA)
R-NW	Rockaway/ 108th	43	1133	1025	2158	211	3
R-SW	North Conduit Ave	37	871	1939	2810	145	2
	Racetrack Road	20	650	1972	2622	133	1

[a] Peak traffic hour (weekend evening) and distribution. Source: Habib, 2009 and Habib, 2010.
[b] Peak weekend evening hour traffic at traveling to or from entrance road. Source: Habib, 2009.
[c] Total percent of existing.
[d] From decibel addition of similar sound levels (Hoover and Keith, 1994).

On-site Vehicles and VLT Operation

Acoustical modeling of sound from on-site passenger vehicles and VLT operation at each receptor are presented in Table 2. Note that reduction of 5 dBA was estimated to account for line-of-sight barrier attenuation from a wood fence along portions of R-NW, and the NYC MTA rail line berm in front of ML-SW.[6]

Table 3. ***Noise Assessment Results – On-site Traffic and VLT Operation.***

Receptor	Noise Source Reference Sound Level[a] (dBA @ 50 feet)	Receptor Distance[b] (feet)	Distance Attenuation[c] (dBA)	Barrier Attenuation (dBA)	Noise Source Sound Level at Receptor (dBA)	Existing Sound Level[d] (dBA)	Total Sound Level[e] (dBA)	Sound Level Increase (dBA)
On-site Vehicles (passenger vehicles to and from parking areas)								
R-NW	50	35	+3	-5[f]	48	52	53	1
R-SW	50	250	-14	-5[g]	31	66	66	0

[6] Conservatively assumes a minimum barrier path length difference of 0.01 feet (Hoover and Keith, 1994).

Table 3. ***Noise Assessment Results – On-site Traffic and VLT Operation.***

Receptor	Noise Source Reference Sound Level[a] (dBA @ 50 feet)	Receptor Distance [b] (feet)	Distance Attenuation[c] (dBA)	Barrier Attenuation (dBA)	Noise Source Sound Level at Receptor (dBA)	Existing Sound Level[d] (dBA)	Total Sound Level[e] (dBA)	Sound Level Increase (dBA)
VLT Operation								
R-NW	51	800	-24	0	27	47	47	0
R-SW	51	500	-20	-5[g]	26	52	52	0

[a] On-site vehicle sound level for passenger car/light truck at 15 mph; VLT sound level from measurements at Yonkers Racetrack; HVAC sound is from empirical
[b] Nearest receptor within each receptor area.
[c] Based on 6 dBA reduction per doubling of distance; mathematically calculated as: -20Log(Receptor Distance/Reference Distance).
[d] Average existing daytime ambient sound level for on-site vehicle evaluation, and background ambient sound level for VLT evaluation.
[e] Decibel sum of project noise source and existing sound level.
[f] Insertion loss for wood fence line-of-sight barrier between the Rockaway Boulevard entrance and R-NW.
[g] Insertion loss for elevated rail line berm line-of-sight barrier along the Aqueduct Racetrack's west property line.

As indicated in Tables 2 and 3, the maximum predicted increase in existing ambient sound levels due to the project operation was 3 dBA or less at all receptors, which is within the maximum allowable increase limit of 6 dBA. Therefore, project operation is predicted to result in no significant adverse noise impacts on the community, and improvements are not required.

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Attachments: Figure 1 – Site Location, Noise Receptor Areas and Baseline Monitoring Locations.

Figure 1. Project Site, Noise Receptors and Monitoring Locations

Photometric Plans

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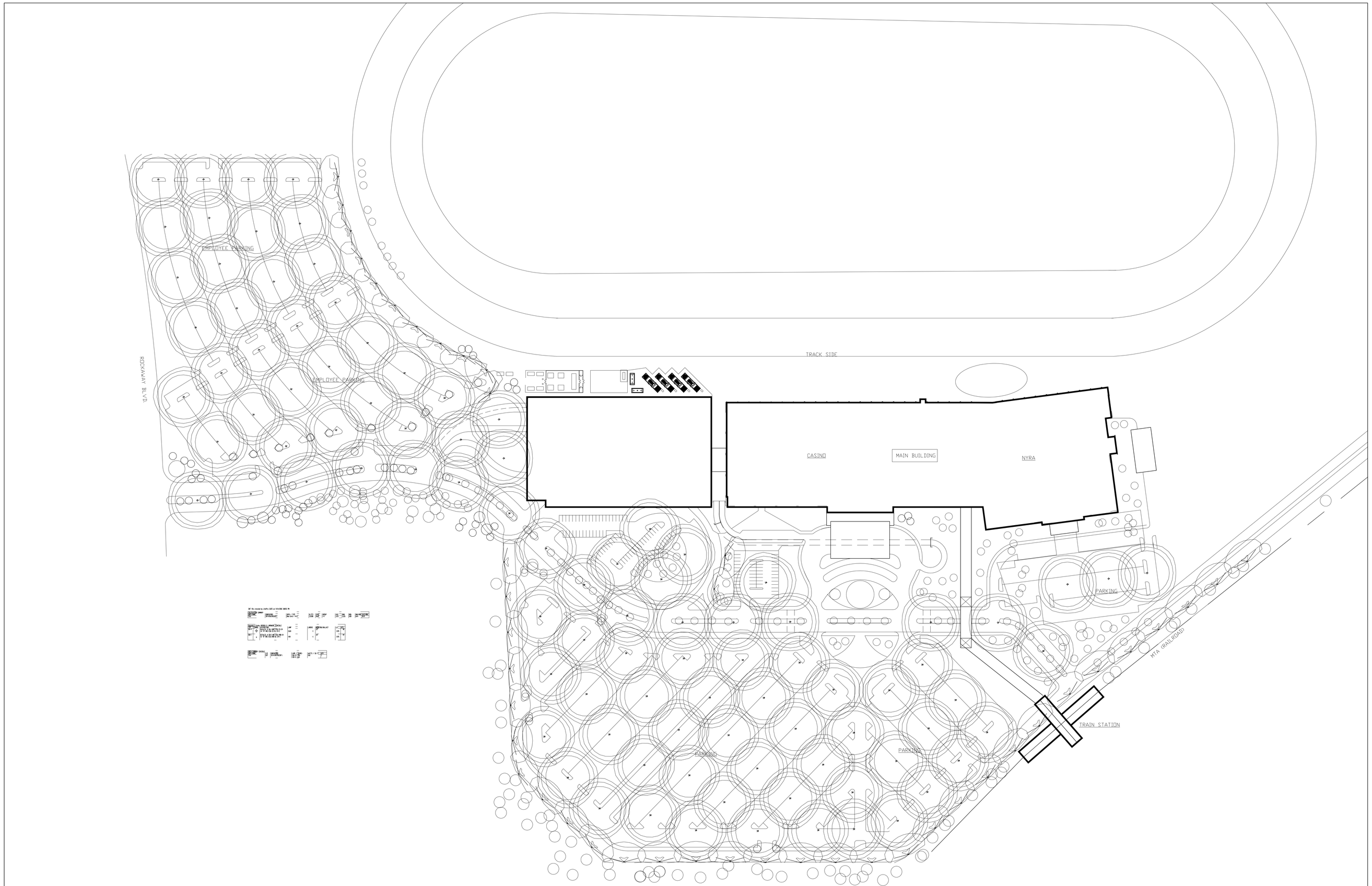

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